CONGRESS OF THE UNITED STATES
CONGRESSIONAL BUDGET OFFICE

AUGUST 1986

The Tax-Exempt Financing of Student Loans

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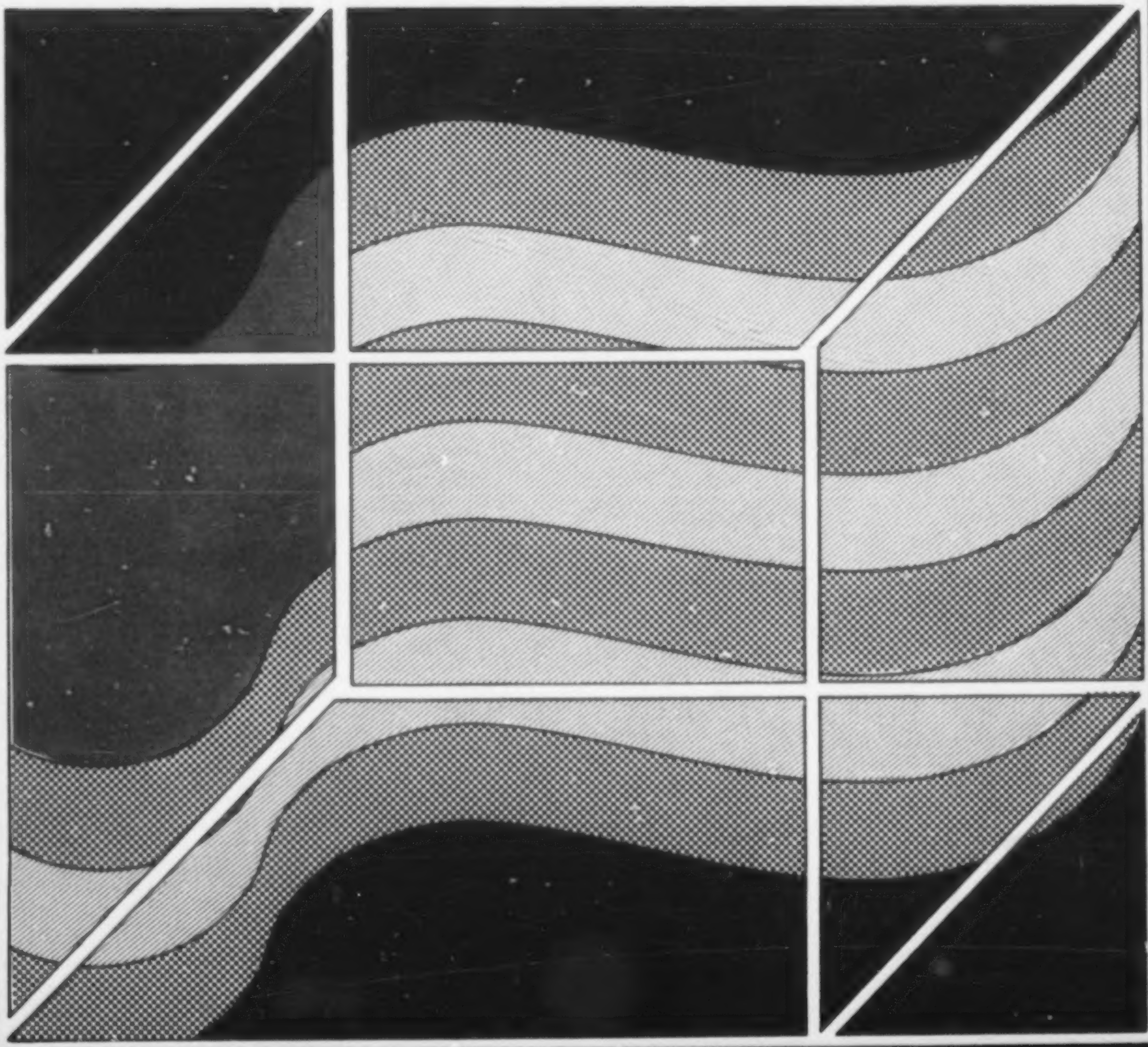

CBO STUDY

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THE TAX-EXEMPT FINANCING
OF STUDENT LOANS

The Congress of the United States
Congressional Budget Office

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PREFACE

Since 1968, the federal government has adopted several measures to curb the use of tax-exempt bonds by states and municipalities to finance loans to individuals or private businesses. The most recent of these measures was the Deficit Reduction Act of 1984, which placed limits on the volume of tax-exempt student loan and industrial revenue bonds that states could issue. The act also required the Congressional Budget Office (CBO) and the General Accounting Office (GAO) to conduct independent studies of "the appropriate role" of tax-exempt bonds in federally guaranteed student loan programs and "the appropriate arbitrage rules for such bonds." As specified in the legislation, this report is being submitted to the Committee on Finance and the Committee on Labor and Human Resources in the Senate and the Committee on Ways and Means and the Committee on Education and Labor in the House of Representatives. The report analyzes the use of student loan bonds under current law, the arbitrage earnings that accrue to issuers of these bonds, and the costs to the federal government of tax-exempt financing In accordance with CBO's mandate to provide objective analysis, it offers a number of alternatives for changing current law, but no recommendations.

The study was made by Pearl W. Richardson of CBO's Tax Analysis Division, under the direction of Rosemary D. Marcuss and Eric J. Toder. Eric Toder wrote the appendix to the report, which provides the analysis underlying CBO's estimates of revenue losses to the federal government from using tax-exempt student loan bonds. Frederick C. Ribe of the Fiscal Analysis Division also contributed importantly to CBO's efforts to estimate revenue losses from tax-exempt financing.

Many others contributed to the study. The state student loan authorities and the Department of Education were most cooperative. Others who provided useful information and helpful comments included Harry Apfel, Loren Carlson, Bruce Davie, H. Benjamin Hartley, Thomas Neubig, David Reicher, James M. Verdier, and Jillian Watkins. Within CBO, constructive comments were made by Michael Deich, Edward M. Gramlich, Robert Hartman, Deborah Kalcevic, Maureen McLaughlin, and Marvin Phaup.

The paper was edited by Francis S. Pierce. Shirley Hornbuckle and Linda Brockman prepared the manuscript for publication.

Rudolph G. Penner
Director

August 1986

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SUMMARY

In recent years, the federal government has taken measures to limit the volume of bonds that are exempt from federal taxation and are issued by states and municipalities to finance below-market-interest-rate loans to individuals or businesses. This effort has included placing limits on the use of tax-exempt bonds as a source of financing for federally guaranteed student loans. In 1980, the Congressional Budget Office (CBO) found that state and local student loan authorities were earning millions of dollars in profits from the issuance of tax-exempt bonds. The Congress responded by passing legislation to reduce student loan authorities' profits and to lower the costs of using tax-exempt student loan bonds. This report focuses on developments since 1980.

Student loan bonds are issued by state and local student loan authorities to raise funds at rates lower than those available to commercial lenders. The interest rate that students pay on their loans, however, is set by federal legislation and is unaffected by the source of financing. For many years, the federal government has induced commercial lenders to make guaranteed student loans at below-market interest rates by offering them interest subsidies (called "special allowance" payments) and insuring the loans against default. Even with these inducements, however, banks have at times been reluctant to lend because of the high cost of servicing student loans and the lack of an adequate secondary market for the loans. In some instances, then, tax-exempt bonds have made loan funds available where they might otherwise not have been.

Over the years, the links between tax-exempt financing and the issuance of federally guaranteed student loans have raised many questions, such as:

- To what extent does tax-exempt financing increase the availability of the guaranteed student loans?
- Are controls on tax-exempt student loan bond issues desirable?

- Are state authorities realizing profits from operating student loan programs? If so, how might these profits be eliminated without destroying or substantially limiting the authorities' ability to operate?

- How costly are student loan bonds? Is tax-exempt financing more costly to the federal government than conventional financing?

THE PRESENT SITUATION

Today, more than 50 authorities in 39 states, the District of Columbia, and Puerto Rico issue student loan bonds and relend the proceeds to students or purchase guaranteed loans made by commercial banks. The number of state authorities issuing student loan bonds more than doubled between 1980 and 1985. Since 1983, however, the volume of new issues of student loan bonds has declined as a result of federal efforts to curb tax-exempt financing. The volume of new issues peaked at $3.1 billion in 1983, declined to $1.4 billion in 1984, and was $2.9 billion in 1985.

Profits on bond issues are lower now than they were in the late 1970s, but under some circumstances they may still far exceed the needs of the state authorities operating student loan programs. The profits accruing to the state authorities are the difference between the yield on student loans and the level of associated expenses. The authorities receive student loan interest payments and special allowance payments from the federal government. Their expenses include interest on the bonds, loan servicing costs, and operating costs. Since few authorities receive state or local appropriations, their income must be sufficient to cover expenses, but it need not exceed expenses.

In most cases, financing student loans through tax-exempt bonds is more costly to the federal government than other means of financing. The cost stems primarily from reduced federal revenues, because interest on the bonds is not subject to federal taxation. When tax-exempt bonds substitute for conventional financing, federal costs are generally higher for a given volume of student loans. If tax-exempt financing results in additional funding, federal costs will be higher but more credit will be available to students.

THE LEGISLATIVE BACKGROUND

Federal law generally prohibits states from issuing tax-exempt bonds at low interest rates and investing the proceeds at much higher yields. Profits that arise in this way are called "arbitrage." Arbitrage profits provide indirect, off-budget subsidies to state governments at the federal taxpayer's expense.

In the Tax Reform Act of 1976, the Congress made an exception for issuers of student loan bonds to the general prohibition against arbitrage. For arbitrage purposes, the special allowance payment on student loans is not counted in determining the yield on the investments made with bond proceeds. At the time the Tax Reform Act of 1976 was enacted, the portion of the return on student loans that was excluded from arbitrage yield calculations (the special allowance payment) was capped under the education laws at 3 percent. Subsequent higher education legislation changed the way the special allowance is calculated and removed its ceiling.

The Middle Income Student Assistance Act of 1978 made all students, regardless of family income, eligible for in-school interest subsidies on their loans. This increased the demand for student loans by students from high-income families. Current law now sets income limits for guaranteed student loans, but these are high enough to assure strong demand for loans.

Although the Congress had no such intention, the interaction of the Tax Reform Act of 1976, the Middle Income Student Assistance Act of 1978, and high interest rates made it possible for state authorities to realize huge profits from tax-exempt financing of student loans. The profits came primarily from the special allowance that the federal government pays to lenders. Once the Congress became aware of the situation, it took action to reduce these profits and subsequently to limit the use of student loan bonds.

The Education Amendments of 1980 cut in half the special allowance paid on loans originating from or purchased with the proceeds of tax-exempt bonds. The Student Loan and Technical Amendments Act of 1983 required that authorities issue no more bonds than were necessary to meet the need for student loan credit in their areas. Subsequent regulations issued by the Department of Education stipulated that student loans financed with tax-exempt bonds would be eligible for special allowance payments only if taxable financing was demonstrably infeasible. Finally, the Deficit Reduction Act of 1984 set limits on the volume of student loan bonds.

THE POTENTIAL EFFECTS OF PENDING LEGISLATION

At present, legislation to reform the tax code and to reauthorize the Higher Education Act of 1965 is pending in both the House and the Senate. In general, pending education legislation would facilitate tax-exempt financing of student loans, while some pending tax reform measures could have the opposite effect. Despite these differences, all of the bills now pending indicate that, in one form or another, the Congress seeks to continue the use of tax-exempt student loan bonds.

If enacted, the education legislation now pending would encourage tax-exempt financing because:

- o It would no longer be necessary for state authorities to obtain the approval of the Department of Education in order for loans financed with tax-exempt bonds to be eligible for special allowance payments.
- o The bill passed by the Senate would lower the special allowance by one half of a percentage point, which might make it more difficult for authorities to obtain taxable financing. A significantly lower special allowance might also make banks more reluctant to make student loans.

The tax legislation passed by the House would affect student loan bonds in two ways: it would set new, more restrictive limits on the volume of bond issues, and it would tighten arbitrage regulations for all tax-exempt bonds. The new regulations would make it impossible to use arbitrage profits to pay for the costs of bond issuance. The bill passed by the Senate retains the volume limits in current law and, while it imposes new arbitrage restrictions on all bonds, an exception for student loan bonds would make it possible to recover issuance costs from arbitrage profits.

The interaction of some of the provisions of the education and tax bills could make it difficult for state authorities to continue financing loans from tax-exempt or taxable sources. This could happen if, for example, the special allowance is reduced, making taxable financing less feasible, and at the same time stringent arbitrage restrictions are enacted, making tax-exempt financing less feasible. The Congress seems to be neither anticipating nor seeking such an effect, any more than it intended the combined effect of education and tax legislation in the late 1970s, but the possibility is no less real.

THE ALTERNATIVES TO CURRENT POLICY

The justification for tax-exempt financing is that it provides funds for student loans that private institutions otherwise would not make available. The extent to which tax-exempt bonds affect loan availability, however, is difficult to quantify. To some degree, they have displaced lending from taxable sources. In some states, however, they seem to have increased the amount of lending either because of the favorable terms state authorities offered in buying loans from banks or because they were willing to lend when banks refused to do so. At the same time, the bonds represent a cost to the federal government, and the potential for student loan authorities to realize sizable surpluses from issuing them is significant, despite the legislation passed in 1980 and the volume limits and administrative controls instituted more recently.

In considering alternatives to current law, the Congress will have to determine whether its primary objective is to increase the availability of student loan credit, to reduce the deficit, or to eliminate student loan authorities' profits.

- If its goal is to increase the availability of student loans, the Congress either could provide additional incentives to commercial banks and thrift institutions by increasing special allowance payments so that more taxable funds become available for GSL and PLUS loans, or it could ease some or all of the present restrictions on tax-exempt financing.

- If the Congress seeks to maximize the amount of student credit available and, at the same time, to reduce off-budget, nonvisible tax expenditures, it could increase the special allowance for taxable loans and eliminate tax-exempt student loan bonds entirely.

- If the Congress wants to lower the deficit, it might consider reducing the special allowance payments for student loans and either imposing additional limits on the use of student loan bonds or eliminating them entirely and reducing the overall volume limits on tax-exempt bonds accordingly.

- If the Congress's main aim is to eliminate student loan authorities' profits, it might consider lowering the special allowance payment for student loans financed with tax-exempt bonds or tightening the arbitrage provisions of current law by including special allowance payments in calculations of arbitrage income and requiring student loan authorities to rebate arbitrage earnings to the federal government. The Congress could also specify permissible uses of surplus funds resulting from student loan authority operations.

Some of these measures are not mutually exclusive. For example, the Congress could ease the volume limits or retain current limits and, at the same time, tighten the arbitrage regulations for student loan bonds; or, it could impose more restrictive volume limits and tighten arbitrage regulations. The action that the Congress ultimately takes would depend on whether its primary concern is the overall level of tax-exempt financing, the potential enrichment of state student loan authorities at the federal taxpayers' expense, or both.

CHAPTER I

INTRODUCTION

For the past several years, the federal government has attempted to curb tax-exempt financing in general and student loan bonds in particular. This report deals with past, current, and potential issues stemming from the use of tax-exempt bonds as a source of financing for federally guaranteed student loans. Its purpose is to satisfy the provisions of the Tax Reform Act of 1984, requiring the Congressional Budget Office to study "the appropriate role" of tax-exempt bonds in federally guaranteed student loan programs and "the appropriate arbitrage rules for such bonds."

Student loan bonds are a unique form of tax-exempt financing because they are integrally related to other federal programs that provide direct subsidy assistance, namely, the Guaranteed Student Loan (GSL) and the Parent Loans for Undergraduate Students (PLUS) programs. A CBO report published six years ago examined some of the issues that grew out of the relationship between tax-exempt financing and direct federal assistance for higher education loan programs.[1] In 1980, CBO found that state student loan authorities were earning millions of dollars in profits from the issuance of tax-exempt bonds. The Congress responded by passing legislation intended to reduce student loan authorities' profits and to lower the costs of using tax-exempt student loan bonds. This report examines the effectiveness of that legislation in the light of subsequent developments. Accordingly, it focuses on federal revenue losses from tax-exempt student loan bonds and on the arbitrage earnings that accrue to state authorities when they issue tax-exempt bonds and invest the proceeds at much higher yields, a practice that federal income tax law generally prohibits because it results in indirect, off-budget subsidies to state governments at the federal taxpayer's expense.

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[1] Congressional Budget Office, *State Profits on Tax-Exempt Student Loan Bonds: Analysis and Options* (March 1980).

THE GSL AND PLUS PROGRAMS

The Guaranteed Student Loan Program, enacted in 1965, has been the primary source of student loan assistance for higher education for the past 20 years. Students qualify for GSLs if they are enrolled at least half time in an eligible institution of higher education or a vocational school. Undergraduates may borrow up to $2,500 a year and $12,500 over five years. Graduate students may borrow up to $5,000 a year, limited to a total of $25,000 for all undergraduate and graduate indebtedness under the program.2/ Students whose families' adjusted gross income is less than $30,000 a year may borrow the difference between their education costs and any other aid, up to the annual maximum. Students whose families' annual income exceeds $30,000 may borrow the dollar limit only if it is less than the difference between the cost of attendance and the estimated expected family contribution, which is based on adjusted gross income, and other aid.3/

Under the GSL program, the Department of Education subsidizes student loans in three ways:

- It guarantees repayment of qualified student loans.
- It provides lenders with an interest subsidy on qualifying student loans in the form of a quarterly special allowance payment. This makes it possible for student borrowers to pay less interest.
- It pays an additional interest subsidy while the student is attending school. The student neither pays nor accrues interest or principal while in school. In effect, the in-school interest subsidy is a grant because the student never has to repay it.

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2. Pending legislation in both the House and the Senate would increase annual and aggregate loan limits. H.R. 3700 would raise loan limits to $5,000 a year for juniors and seniors, up to a total undergraduate indebtedness of $14,500, and to $8,000 a year for graduate students, if their tuition, fees, and costs exceed $5,000 a year, up to a maximum for all undergraduate and graduate indebtedness under the program ranging from $39,500 to $64,500. S. 1965 would increase annual loan limits to $3,000 for freshmen and sophomores, $4,000 for juniors and seniors, and $7,500 for graduate students. Undergraduates would be able to borrow up to $18,000 over five years, and graduate students would be able to incur a debt of up to $50,000 for all undergradute and graduate loans.

3. Both H.R. 3700 and S. 1965 would base assistance on a needs analysis for all students, regardless of income. Dependent students from high-income families would be eligible for assistance under a supplemental loan program, which would provide shallower subsidies than the regular GSL program.

The PLUS program, enacted in 1980, is similar, but the loans are available only to parents and students who are not dependent on their parents. The interest rates to borrowers are higher and interest payments are made while the student is in school, making the federal subsidy considerably less.

FINANCING STUDENT LOANS

Commercial banks, nonprofit state and local authorities, the Student Loan Marketing Association (Sallie Mae), and other lenders make and purchase loans under the GSL and PLUS programs. Sallie Mae was established in 1972 to increase the availability of student loans by providing funds to lenders. Sallie Mae does so by selling its debt to investors and using the proceeds to buy GSL and PLUS loans from banks, savings and loans, and state authorities, and by making loans, known as warehousing advances, to these institutions. Sallie Mae does not originate loans, but through its loan purchases and warehousing advances combined, Sallie Mae provides funding for about one-third of all outstanding guaranteed student loans. The relationship between Sallie Mae and state authorities is complex. Sallie Mae may be a competitor, a creditor, or a customer of any single authority--or it may be all three. Sallie Mae competes with state authorities that buy loans from banks and thrift institutions; it may provide warehousing advances to authorities to finance either their direct lending or their secondary market activities; and it may buy loans from authorities.

State and local authorities use the proceeds of tax-exempt student loan bonds and, to a lesser extent, taxable loans from Sallie Mae or other institutions to finance their direct lending and secondary market activities. As of the end of fiscal year 1985, state and local authorities held about 12 percent of the $39 billion in loans outstanding under the GSL and PLUS programs. Sallie Mae held 16 percent.

At present, the interest rates to student loan borrowers are 8 percent under the GSL program and 12 percent under the PLUS program. In the past, interest rates on GSL loans have ranged from 7 to 9 percent, while PLUS rates have been as high as 14 percent. These rates are set by legislation.[4] The Department of Education gives lenders a special allowance payment (SAP) that fluctuates with the Treasury bill rate and makes up the difference between the interest rate that students pay and the interest that banks could earn on alternative investments. The SAP brings the rate on the loans up to 3.5 percentage points above the bond equivalent rate of the 91-day T-bill.5/ The special allowance on loans made with the proceeds of tax-exempt bonds is 50 percent lower than on loans from commercial banks because the cost of borrowing with tax-exempt bonds is lower.

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[4] H.R. 3700 would raise interest rates on new loans to 10 percent five years after the student has left school. S. 1965 would raise the interest rate to 10 percent as soon as the student begins to repay the loan.

When students borrow under the GSL and PLUS programs, the interest rates they pay are the same regardless of whether the financing is taxable or tax-exempt. The rationale for tax-exempt financing is not that it makes it possible for students to get guaranteed loans at lower rates, but that it increases access to student loans by making it possible for state and private nonprofit authorities to operate wherever private institutions may be reluctant to do so.

KEY ISSUES

Over the years, the links between tax-exempt financing and the GSL and PLUS programs have raised a number of special issues. The primary questions have been:

- What is the role of tax-exempt financing in view of the many sources of conventional financing available to carry out the purposes of the GSL and PLUS programs? Does tax-exempt financing increase the availability of loan funds?
- Are controls on tax-exempt student loan bond issues desirable?
- Are state authorities realizing profits from operating student loan programs?
- Is tax-exempt financing of student loans more costly to the federal government than taxable financing?

This study attempts to address these issues. The chapters that follow cover the history of tax-exempt student loan bonds, their interaction with

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5. S. 1965 would reduce the SAP, making the rate on loans 3.00 percentage points above the bond equivalent 91-day T-bill. The bond equivalent rate is slightly higher than the actual T-bill rate.

student loan programs, and the issues they have raised; the effects of recent efforts to limit the use of student loan bonds; the operations of state and local student bond programs; the costs to the federal government of student loan bonds; and the alternatives to current policy.

The report also looks at the potential effects of pending legislation on tax-exempt student loan bonds, the authorities that issue them, and student loan financing generally. Its aim is to provide the Congress with the information it needs to determine whether or not legislation governing student loan bonds should remain the same or be changed and, if so, how. In light of its Congressional mandate, the report does not consider the larger issues of subsidies for higher education, the need for them, or the best ways of providing them. Rather, it assumes that the Congress has already determined that assistance for higher education should be provided primarily through federal grants and guaranteed loans to students.

In undertaking this study, CBO reestimated revenue losses from tax-exempt bonds. A technical appendix to the report describes in detail the model used to estimate these losses.

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CHAPTER II

THE LEGISLATIVE HISTORY OF STUDENT LOAN BONDS

The use of student loan bonds was minimal from the mid-1960s to the mid-1970s, became increasingly widespread beginning in the late 1970s, and was subjected to legislative and administrative restrictions in the 1980s.

The low volume of student loan bond issues in the 1960s may have reflected the limited objectives of the GSL program, which initially consisted of insuring commercial lenders against default and providing in-school subsidies to students from families with incomes below $15,000 a year. Virtually all of the lenders in the program were banks, and the interest rates on the loans were set close to the prime rate. In 1969, when interest rates began to rise, the Congress passed the Emergency Insured Student Loan Act, which authorized special allowance payments. These consisted of quarterly payments from the federal government to lenders. The special allowance payments had a statutory ceiling of 3 percent.

Although the first student loan bonds were issued in 1966, few states used them during the next 10 years. The bonds came to the attention of the Congress in 1976, when nonprofit student loan corporations in Texas sought to issue tax-exempt bonds with the assurance that special allowance payments would be excluded from arbitrage calculations. At the time, only six other states had issued student loan bonds. The total volume of issues in 1975 was less than $50 million, and the special allowance had a low (3 percent) ceiling. Members of Congress therefore had little reason to object to the legislation.

The Tax Reform Act of 1976 authorized nonprofit corporations established by a state or local government to issue tax-exempt bonds for the purpose of acquiring GSLs. The act also exempted the special allowance from the provisions of the tax code prohibiting arbitrage. It required that any surpluses that state agencies accumulated either be used to make or purchase additional student loans or be turned over to the state government or a political subdivision.

This and subsequent education legislation provided incentives to establish more student loan authorities and to increase the use of tax-exempt financing. Late in 1976, the Congress raised the ceiling on special allowance payments to 5 percent and tied them by formula to quarterly changes in the 91-day Treasury bill rate. The Higher Education Technical Amendments of 1979 removed the ceiling completely, making the program more attractive to commercial banks and other lenders and increasing the supply of loans.

In the meantime, the Middle Income Student Assistance Act of 1978 had removed the income limits for in-school interest subsidies on GSLs, greatly expanding the demand for loans. This, in turn, increased the popularity of student loan bonds.

STATE PROFITS ON STUDENT LOAN BONDS

In March 1980, a CBO study reported that the interaction of rising interest rates and tax and education legislation had made it possible for a growing number of state and local governments to accumulate "millions of dollars in unanticipated profits through the federally subsidized guaranteed student loan program."[1] The report pointed out that in 1979 the interest costs of most student loan authorities were below 7 percent, while the yield they received on student loans fluctuated between 11 percent and 16 percent. These spreads of between four and nine percentage points, or more, far exceeded the costs of administering the programs and resulted in windfall profits for the authorities at the federal government's expense.

The Congress may have anticipated the possibility of surpluses, but it had never intended them to be so large. Little, if any, consideration seems to have been given to the effects of higher interest rates. In any event, no one who drafted the tax legislation in 1976 had any reason to anticipate the education legislation that passed a few years later. And, more than likely, the drafters of the education legislation were unaware of the effects it was likely to have on the profitability of the programs.

EFFORTS TO RESTRICT THE USE OF STUDENT LOAN BONDS

When the Congress became aware of the profitability of student loan programs, it passed remedial legislation. The exemption of the special allowance from the arbitrage provisions of the tax code had made it possible for state authorities, which issue bonds at below-market interest rates, to realize a higher return on student loans than commercial banks participating in the GSL program. The Education Amendments of 1980, therefore, reduced by one-half the special allowance rate paid on loans originating from the proceeds of tax-exempt bonds. To assure that student loan authorities were always able to cover their operating costs, the amendments also established minimum special allowances, which vary with the interest rate on the student loan. The minimum allowances are 2.5 percent of the principal for 7 percent GSLs, 1.5 percent for 8 percent loans, and 0.5 percent for 9 percent loans. Loans originated prior to October 1, 1980, when the amendments went into effect, are still eligible for the full special allowance rate.

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[1] Congressional Budget Office, *State Profits on Tax-Exempt Student Loan Bonds: Analysis and Options* (March 1980), p. ix.

The Education Amendments also required that authorities submit a formal "plan for doing business" with the Secretary of Education before purchasing or originating GSLs from the proceeds of tax-exempt bonds. Among its requirements, the plan must set the same terms for purchasing loans from all eligible lenders and provide for the development of programs to encourage new lender participation. The Secretary of Education has to approve or disapprove the plan for doing business within 30 days of its submission. Approval is necessary before an agency is eligible to receive the GSL interest subsidy.

The Ford Amendment

The Student Loan Consolidation and Technical Amendments Act of 1983 added to the eligibility requirements for the special allowance payment. It required that an authority's plan for doing business assure that it would issue no more tax-exempt bonds than were necessary to meet "the reasonable needs for student loan credit within the area served by the Authority, after taking into account existing sources of student loan credit in that area." The purpose of the amendment was to assure that authorities issue no more tax-exempt bonds than they could use, both because overissuance can make possible excessive arbitrage profits (see Chapter III) and because tax-exempt financing can result in federal revenue losses (see Chapter IV).

The interpretation of this amendment has been controversial. The Department of Education has interpreted it to mean that unless a state authority has exhausted all possibility of using taxable financing, any loans it makes or purchases with the proceeds of tax-exempt bonds are ineligible for the special allowance payment. The Department based its interpretation on a statement that Congressman William D. Ford, the amendment's sponsor, made during House floor consideration of the act. The purpose of the amendment, he said, was to require scrutiny of "the amounts of capital raised through tax-exempt bonds to insure that excessive amounts beyond the reasonable needs of student credit are not being sold. The federal revenue forgone because of the tax-exempt status of these bonds increases the...deficit. This...cost should not be incurred beyond...the legitimate educational credit needs of students."2/ The amendment passed both Houses of Congress without committee consideration. The only legislative history on it is in the floor debates, and, apart from Congressman Ford, no one commented on it.

The Department of Education issued proposed regulations implementing the amendment in February 1984 and final regulations one year later.3/ These require an authority to conduct a survey of all available credit, including Sallie Mae and other sources of taxable loan funds, and to conclude that the credit is insufficient to meet the reasonable needs of students in the area before issuing tax-exempt student loan bonds.

The regulations specifically set forth the means for determining the availability of alternative taxable financing, including the assumptions that authorities must use in evaluating their own ability to afford the terms of credit on a taxable borrowing. Sallie Mae, which was established to increase the availability of student loans by providing funds and a secondary market to lenders, is the chief source of taxable financing.4/ The authority must determine the terms on which credit would be available from Sallie Mae and two other lending institutions. If it cannot meet the terms, it must make a good faith effort to negotiate changes that would make taxable financing possible.

Although the Department of Education has no direct control over a state authority's ability to issue tax-exempt bonds, its ability to withhold special allowance payments effectively gives it such control. Following publication of its preliminary regulations, several Members of Congress expressed the view that the requirements for approval of tax-exempt

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2. *Congressional Record*, August 1, 1983, p. H6121. In subsequent correspondence with the Department of Education, Congressman Ford urged against subjecting state and local authorities to "unrealistic," "overzealous," or "unnecessarily burdensome" regulations. This correspondence followed publication of the Department's preliminary regulations implementing the amendment. See letter from Congressman William D. Ford to the Honorable Terrell Bell, Secretary of the U.S. Department of Education, March 8, 1984.

3. See *Federal Register*, vol. 50, no. 27 (February 8, 1985), pp. 5506-5541.

4. Sallie Mae is usually able to offer better terms than commercial banks because it is able to borrow funds at much lower interest rates. See Congressional Budget Office, *Government-Sponsored Enterprises and Their Implicit Federal Subsidy: The Case of Sallie Mae* (December 1985).

financing went beyond the legislative intent of the Ford Amendment. In a letter to Senator Robert Dole, then Chairman of the Committee on Finance, several senators declared that Congress's objective in enacting the amendment "was to avoid excessive issuance of tax-exempt obligations for student loan(s)...not to prevent the issuance of student loan bonds where the need is reasonable or to require issuers to finance their student loan program through the issuance of taxable obligations. The Education Department's proposed regulations go far beyond this objective," they asserted.5/

Paul Simon, Chairman of the House Subcommittee on Postsecondary Education when the Ford Amendment was adopted, held similar views. In a letter to the Secretary of Education, he wrote: "For some time now, both the Treasury Department and the Office of Management and Budget have been urging the Congress to eliminate tax-exempt state bonding authority in a number of areas...in order to reduce revenue losses....I generally support the Administration view....The point...is that Congress has not yet decided the larger question." He added that nowhere in the Ford Amendment language or in the legislative history could support be found for the requirement that state authorities not only demonstrate a need for funds, but also show that taxable financing is infeasible.

For all practical purposes, the Department of Education's interpretation of the Ford Amendment has prevailed. Since its passage, the Department has approved less than half--45 percent--of the $5.9 billion worth of requests from state student loan authorities for tax-exempt financing. At hearings in June 1985, Congressman Ford stated that the Department was carrying its enforcement of the amendment "to the ridiculous."6/ Six months later, the House passed legislation reauthorizing the Education Act of 1965 (H.R. 3700). The bill contains a provision transferring from the Department of Education to the governors of the states the responsibility for approving state authorities' plans for doing business, including assuring against excessive issues of tax-exempt student loan bonds. The reauthorization bill passed by the Senate (S. 1965) in June 1986 goes even further, completely eliminating the requirement to develop a plan for doing business.

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5. Letter from Senators Larry Pressler, Walter Huddleston, John Warner, John Stennis, Edward Zorinsky, Thad Cochran, Mark Andrews, James Exon, Dave Durenberger, and Rudy Boschwitz to Senator Robert Dole, April 25, 1984.

6. Letter from then Congressman now Senator Paul Simon to Secretary of Education Terrell H. Bell, January 30, 1984.

The Deficit Reduction Act of 1984

At present, the Department of Education exerts the primary, but not the only, control on the use of student loan bonds. The Deficit Reduction Act further restricts use of the bonds. The act imposes a limit on the total volume of student loan and most industrial development bonds that state and local governments may issue.[7] A single overall limit applies to both types of bonds. The limit applies to each state and currently is set at $150 for each resident of the state or $200 million, whichever is greater.[8] So long as the volume of issues is within its limit, a state can determine for itself how to allocate tax-exempt financing. As of the end of 1985, most, but not all states were issuing bonds within the mandated limits. In the future, the volume caps are likely to be more constraining and to force more choices. The Deficit Reduction Act also generally denies tax-exemption to bonds that are backed directly or indirectly by federal guarantees. By virtue of a special exception to the general rule, student loans made with the proceeds of tax-exempt bonds continue to have the same guarantees against default, death, bankruptcy, and disability as loans made from taxable sources of financing.

ARBITRAGE REGULATIONS GOVERNING STUDENT LOAN BONDS

Under current law, student loan bonds are exempt from some of the arbitrage provisions that apply to other tax-exempt bonds. The Deficit Reduction Act, however, tightened the arbitrage provisions on industrial development bonds and opened the way for similar treatment of student loan bonds in the future.

An arbitrage bond is a municipal bond that is used to make a profitable investment. The profit comes from the investment of the proceeds of tax-exempt bonds in higher-yielding taxable securities. In 1969, the Congress enacted legislation to keep arbitrage bonds off the market.

Permissible arbitrage generally is limited so that the spread between the yield on bonds and the yield on acquired obligations is no greater than 0.125 percentage points. If, however, the obligations acquired with the proceeds of the bonds fulfill the purpose of a governmental program, such as student loans, the permissible yield spread is 1.5 percentage points, plus reasonable administrative costs. These include the costs of issuing the bonds and the underwriter's discount.

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[7] *The Chronicle of Higher Education* (June 19, 1985), p. 19.

[8] Industrial development bonds are tax-exempt bonds issued by state and local governments to provide low-cost financing for private firms.

Unlimited arbitrage is permitted on proceeds invested for a temporary period prior to use. Generally, this period may not exceed three years. Unlimited arbitrage is also permitted on proceeds invested in a reserve or replacement fund. No more than 15 percent of a bond issue may be invested without regard to yield restrictions, however. Any amounts in a reserve fund are applied against the 15 percent limit.

Under current law, some types of tax-exempt bonds are subject to additional restrictions. The Mortgage Subsidy Bond Tax Act of 1980 imposed special arbitrage requirements on mortgage bonds.[9] The Deficit Reduction Act put similar restrictions on industrial development bonds. The restrictions are noteworthy because of their potential applicability to student loan bonds.

IDB Arbitrage Restrictions

The Deficit Reduction Act required that arbitrage profits earned on "nonpurpose" obligations acquired with the gross proceeds of IDBs be rebated to the United States Treasury. Nonpurpose obligations generally include all obligations other than those specifically acquired to carry out the purpose for which the bonds were issued. Obligations invested in a debt service reserve fund are considered nonpurpose obligations. Gross proceeds include the original proceeds of the bonds, the investment return on obligations acquired with the bond proceeds, and amounts used or available to pay debt service on the issue.

Arbitrage profits that must be rebated include (1) the excess of the aggregate amount earned on all nonpurpose obligations over the amount that would have been earned if all nonpurpose obligations were invested at a rate equal to the yield on the issue, and (2) any income earned on the arbitrage. In determining the amount of arbitrage profits, no costs associated with the nonpurpose obligations or the bond issue itself are considered. The determination is made without regard to issuance costs or underwriters' discount. Ninety percent of the rebate required on any issue must be paid at least once every five years; the balance is due 30 days after retirement of the issue. The rebate requirement does not apply to an issue if all gross proceeds of the issue are expended within six months of the issue date and for the governmental purpose for which the bonds were issued.

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[9] The limit will decrease to $100 after December 31, 1986, when the use of small issues of IDBs for nonmanufacturing purposes will no longer be permissible.

The amount of bond proceeds that may be invested in nonpurpose obligations at a yield above the bond yield at any time during the bond year is restricted to 150 percent of the debt service for the bond year. These investments must be reduced as the bond issue is repaid. This restriction does not apply to amounts invested for the initial temporary periods permitted under present law. The rebate requirement will apply, however, to such amounts if the gross proceeds are not expended for the governmental purpose within six months.[10]

Arbitrage Restrictions on Student Loan Bonds

The current arbitrage restrictions on student loan bonds are much more lenient than those on IDBs. Current law generally limits permissible arbitrage on student loan bonds to a spread between the interest on the bonds and the interest on the acquired program obligations equal to the greater of (a) 1.5 percentage points plus reasonable administrative costs or (b) all reasonable direct costs of the loan program, including issuance costs and bad debt losses. Special allowance payments made by the Department of Education are not taken into account in determining yield on student loan bonds. In addition, no arbitrage limits are imposed on earnings on nonpurpose obligations for temporary periods of up to three years or on proceeds invested in a reserve fund.

The Deficit Reduction Act directs both the Congressional Budget Office and the General Accounting Office to examine in separate studies the arbitrage treatment of student loan bonds and to make recommendations to the Congress on the appropriate arbitrage restrictions that should apply to student loan bonds. The act specifies that the Congress may then adopt new arbitrage restrictions. If it does not, the Treasury Department has the authority to issue new regulations. This authority includes, but is not limited to, imposing on student loan bonds restrictions similar to those adopted for IDBs; eliminating the special treatment for special allowance payments; and determining that the statutory exceptions for earnings during certain temporary periods and for earnings on reasonably required reserve funds no longer apply to student loan bonds. If the Congress does not enact new rules, the Treasury regulations will become effective on the later of (1) the date that is six months after the regulations are proposed, or (2) the date that the Higher Education Act of 1965 is reauthorized (or expires, if earlier).

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[10] State and local governments issue tax-exempt mortgage bonds to provide low-cost financing for one- to four-family homes.

New regulations may or may not ever go into effect. In the meantime, the Department of Education has imposed restrictions that to some extent limit arbitrage earnings from tax-exempt student loan bonds. If the Department determines that loans made with the proceeds of tax-exempt bonds would be eligible for special allowance payments, the bond issue must conform to the following requirements:

- The bond use period must begin within six months of issuance;
- Authorities must use the proceeds of a refunding issue within 30 days of the issue date to retire prior obligations; and
- The bond use period is limited to one year if the proceeds are to be used for making loans and to two years if the proceeds are for buying loans. Any funds unexpended at the end of the period must be used to repay the obligations comprising that issue, unless the authority can demonstrate an unmet need. Previously, the limit was three years.

Pending Tax Legislation

At present, the Congress is considering legislation that would further affect tax-exempt student loan financing. In December 1985, the House of Representatives passed a tax reform bill (H.R. 3838) that includes provisions to impose tighter volume limits and new arbitrage restrictions on student loan bonds. The bill extends to all tax-exempt bonds some of the arbitrage restrictions now applicable to IDBs (see Chapter V for details). It also retains the provision in the Deficit Reduction Act authorizing the Treasury investments during temporary periods and on reserve funds. In June 1986, the Senate passed a tax reform bill that imposes less stringent arbitrage limits on student loan bonds than the House bill and essentially retains the more liberal volume limits in current law. A House-Senate conference will reconcile the differences between these bills.

The potential effect of more stringent measures on tax-exempt financing depends partially on the operations of student loan bond authorities under current law. The following chapter examines the practices and profits of student loan bond issuers.

CHAPTER III

STUDENT LOAN AUTHORITY OPERATIONS

When state authorities issue tax-exempt student loan bonds, they borrow money from bond purchasers and either relend it to students or purchase loans that banks have made to students. In both cases, the authorities receive a stream of interest and principal payments from the federal government and the students, and they use the funds to pay the interest and principal they owe the bondholders. The federal government's interest payments include both the special allowance payment and the interest on the loan while the student is in school.

The participants in student loan bond programs include the agencies that issue the bonds and administer the programs; the students who receive loans from the agencies; the commercial banks and thrift institutions that make loans to students and resell them to state authorities; the Student Loan Marketing Association (Sallie Mae), which buys loans from commercial banks, savings and loans, and some state authorities, and makes loans to these institutions; the investors who purchase the bonds; and the federal government, which subsidizes the programs and currently determines whether loans made or purchased with tax-exempt bonds are eligible for the special allowance. Since the beginning of 1980, the number of state and local authorities issuing tax-exempt student loan bonds has more than doubled.

At present, 54 authorities in 39 states, the District of Columbia, and Puerto Rico issue tax-exempt bonds to finance guaranteed student loans. Of these, 12 are direct lenders, 38 are secondary market purchasers, and four are both direct lenders and secondary market purchasers. The secondary market purchasers buy loans that other financial institutions have originated, thus providing liquid capital to program lenders, who may then make additional loans. The bondholders are primarily commercial banks, casualty insurance companies, and individual investors in high-income brackets who hold bonds either directly or through tax-exempt bond funds.

Of the total number of authorities, 16 are state agencies; the remainder are private, nonprofit organizations that operate at the state or local level. A few states have no student loan authority and rely solely on banks and thrift institutions to provide guaranteed student loans. In Texas, on the other hand, one statewide agency makes direct loans, and 10 regional authorities purchase loans. The level of state supervision over the activities of these authorities varies considerably. Some authorities operate fairly autonomously, while others are under the control of state guaranty agencies that are, in turn, fully accountable to the legislature and governor. Some authorities are required to solicit competitive bids from underwriters before issuing bonds; others may or may not do so.

As of September 30, 1985, state authorities accounted for nearly $4.3 billion of all outstanding GSLs, or about 12 percent of the $39 billion total. The authorities operating direct loan programs held $1.9 billion in student loans, or about 5 percent of the total outstanding at the time. State authorities in Michigan, Minnesota, New Mexico, North Carolina, Texas, Virginia, and Wisconsin account for nearly 80 percent of the loans held by direct lenders who issue tax-exempt bonds.

State secondary markets held $2.4 billion in GSLs as of the end of fiscal year 1985, or nearly 7 percent of all outstanding loans. State secondary markets in California, Colorado, Indiana, Kentucky, Nebraska, North Dakota, and South Dakota held nearly two-thirds of these loans. The largest single purchaser of loans on the secondary market was Sallie Mae, which accounted for 16.1 percent of total holdings of outstanding loans.

The practices of state student loan bond programs vary. Some state authorities make direct loans to students and maintain in-house loan application processing offices. Students may pick up application forms from their student aid offices but must apply directly to the state lending agency for a loan. Other state authorities contract with private lending institutions to process loan applications and make loans to students. The student applies to a bank, and as soon as a loan is made, the bank sells the loan to the state authority. State authorities involved only in secondary market purchases never get involved in loan originations.

OPERATING COSTS

The costs of operating student loan programs depend on the type of activity an authority undertakes, its age, the total amount of loans in its portfolio, the average size of each account, the overall maturity of its portfolio, and the delinquency and default rates of the loans. Apart from the costs of issuing bonds, which minimally include legal fees and underwriters' discounts, the primary costs of operating student loan programs involve servicing--collecting interest and principal on loans--and general administrative expenses.

In servicing loans, state authorities sometimes contract with private lenders or servicing companies. Collecting interest and principal on student loans is more expensive than on other types of loans. This is because the average size of a student loan ($2,300) is small in comparison to other loans, and the cost of servicing a loan is much the same, regardless of size. Moreover, the average term of a student loan (10 years) is long compared with other small loans, and keeping track of mobile students and recent graduates over so many years is difficult and expensive. The annual cost of servicing student loans generally ranges between 1.25 percent and 1.50 percent of the outstanding loan balance. By comparison, the cost of servicing home mortgages generally runs between 0.25 percent and 0.375 percent of the outstanding balance. Some student loan programs, such as the Illinois State Scholarship Commission, purchase loans that are "damaged," or difficult to collect. These loans, of course, are even more expensive to service.

Between 1980 and 1984, the Higher Education Loan Programs (HELP), which operate in Washington, D.C., Kansas, and West Virginia, had servicing costs ranging from 0.5 percent to 2.5 percent of average outstanding loan volume. In 1984, servicing costs for each of the agencies were 0.8 percent in Washington, D.C., 1.3 percent in Kansas, and 1.5 percent in West Virginia, which had a much smaller portfolio of outstanding loans than either of the other two agencies.1/ The Virginia Educational Loan Authority has servicing costs ranging between 1.0 percent and 1.25 percent of outstanding loan volume. All of these agencies operate direct loan programs. Although exceptions abound, generally the relative cost of servicing declines as the size of the loan portfolio increases.

The same holds for administrative costs, which include personnel, staffing, office space, and other expenses associated with issuing bonds, and

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1. This information was provided to CBO by the Higher Education Management and Resources (HEMAR) group. The group includes the Higher Education Assistance Foundation (HAEF), which serves as the primary guarantor of student loans in six states and provides loan guarantees and related services nationwide; the Higher Education Loan Programs (HELP) of Kansas, Washington, D.C., and West Virginia; and the HEMAR Service Corporation (HSC).

making and purchasing loans. Authorities that originate loans are likely to have relatively higher administrative costs than those that purchase them on the secondary market. On the other hand, their servicing costs may be relatively lower because of the period of time that elapses before the loans go into repayment. In general, the higher the proportion of loans in repayment, the greater the servicing costs as a percentage of total outstanding loans. The age of an agency will also determine the relative cost of administration, with start-up costs generally representing a much larger percentage of total outstanding loans than ongoing expenses.

Some authorities originate loans and sell them to Sallie Mae, while others hold them to maturity. The sale of loans reduces the total value of the originating authority's portfolio, without reducing general administrative expenses. As a result, these will go up as a percentage of the authority's total outstanding loans.

Between 1980 and 1984, the administrative costs of the three HELP programs ranged from 0.5 percent to 5.3 percent. In 1984, the combined administrative and servicing costs of each of the three programs were 2.1 percent of outstanding loans in Kansas, 2.3 percent in Washington, D.C., and 4.4 percent in West Virginia. The latter had a loan portfolio of slightly more than $1 million, while the other agencies' portfolios each exceeded $50 million.

At present, a well established, efficient agency with a sizable portfolio of loans is generally able to keep total operating costs down to between 2.0 percent and 2.5 percent of outstanding loan principal over the long term. Some do better; others not as well.

THE YIELD ON STUDENT LOANS

The interest rates that student loan recipients are paying may be 7, 8, or 9 percent, depending on when the loan was made. The rate for new loans is currently 8 percent. The yield to the lender consists of the student's interest liability on the loan, which is statutory, and the special allowance payments (SAP) made by the Department of Education, which are calculated each quarter to bring the total up to an administratively set "market interest rate." For student loans financed with taxable funds, the total return is 3.5 percentage points above the T-bill rate. For student loans financed with tax-exempt bonds, the special allowance is the greater of one-half of the regular payment, or whatever payment is necessary to assure a minimum return of 9.5 percent.[2] All loans made or insured before October 1, 1980, are eligible for the full SAP, regardless of whether or not they were financed with tax-exempt bonds. Many of these loans, which carry a 7 percent interest rate, are still outstanding. As they get paid off, they comprise a diminishing proportion of all outstanding loans, but some state authorities, particularly the older ones, still have a number of these highly profitable loans in their portfolios.

RETURNS TO STUDENT LOAN AUTHORITIES

The returns to state and local authorities from operating student loan programs vary with both their cost of funds and Treasury bill rates. The profitability of any program depends on the spread between an authority's borrowing costs, on the one hand, and its interest earnings, on the other. Authorities also have other sources of income, including the interest earned on unobligated bond proceeds, reserve funds, and retained earnings from previous years.

In the late 1970s, some student loan authorities profited from spreads between their interest costs and loan yields of 10 percentage points and more. This was possible because, even though their borrowing costs were roughly 30 percent lower than those of commercial banks, authorities received the same special allowance payment, and the SAP was based on a commercial lender's cost of funds. Typically, authorities had borrowed at fixed rates and for relatively long terms--generally between 10 and 17 years, and less commonly for three years.[3] As interest rates rose, so did loan yields and profits.

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[2] For loans financed with tax-exempt bonds, the basic formula for the SAP is 0.5 x [T-bill rate + 3.5 - student loan interest rate]. On 7 percent loans, the SAP is one-half of the bond equivalent T-bill rate minus 3.5, but not less than 2.5 percent; on 8 percent loans, the SAP is equal to one-half of the bond equivalent T-bill rate minus 4.5, but not less than 1.5 percent; and on 9 percent loans, it is one-half of the T-bill rate minus 5.5, but not less than 0.5 percent. This basic formula applies to all loans made since October 1, 1981, and, with slight modifications, to all loans made after October 1, 1980. For loans made between October 1, 1980, and October 1, 1981, the SAP was rounded up to the next one-eighth of 1 percent interest point.

[3] The time horizon for long-term bonds has generally been 15-17 years. Students must repay loans 10 years after graduation or 15 years after receiving the loans, whichever is shorter. Loan repayment periods are generally ten years, but deferments can extend the term of the loan up to three years. Moreover, in the past authorities have had up

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With the passage of the Student Loan Act of 1980, which reduced the special allowance for loans financed with tax-exempt bonds, the spreads between interest costs and loan yields narrowed. Under some circumstances, however, student loan authorities can still realize spreads that are much higher than necessary to cover costs. They also are exposed to more interest rate risk than previously, and, accordingly, their methods of financing are much more varied than they were in the late 1970s. If interest rates are favorable (below, say, 8 percent), authorities may issue long-term, fixed-rate bonds. Since they are assured a minimum return on student loans of 9.5 percent, they are protected if interest rates fall and can profit from wide spreads if rates rise.[4] If interest rates are high, authorities are more likely to issue short-term or floating rate bonds.

In the early 1980s, when interest rates were high, student loan authorities tended to issue bonds for three-year terms. This practice has become much less common because three-year bonds have to be refinanced upon maturity and, under current law, refundings of tax-exempt bonds have to receive approval from the Department of Education in order for the SAP to continue. Since authorities would prefer to seek such approval as infrequently as possible, the more common practice currently is to issue long-term (up to 17 years) bonds. These may be fixed-rate term bonds, bonds with serial maturities, variable-rate bonds, or some combination of the three.

Variable/Fixed-Rate Bond Issues

In the past year, several authorities have issued variable-rate bonds that are convertible to fixed-rate instruments. Although the details of these "flexibonds" vary, in general they have increased student loan authorities' ability to borrow when interest rates are high and have enhanced their potential for accumulating surpluses from arbitrage profits. In 1980, when the legislation reducing the special allowance went into effect, fixed-rate financing was the norm. More recently, the pattern has been to issue bonds with rates that may be fixed for a brief period and subsequently adjusted.

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to three years to make or acquire loans. They now have between one and two years, unless they choose to forgo the SAP.

[4] The current policies of the agencies that rate student loan bonds also assure wide spreads. The agencies insist that analysis of a proposed bond issue be based on a worst case scenario and that SAP payments be excluded from projections of cash flow.

The adjusted rates may then be variable or fixed for a long term, depending on prevailing interest rate levels. If variable, the bonds will usually have a provision for conversion to a fixed-rate instrument when interest rates drop to a specified level--generally between 7 percent and 8 percent. The rate will vary among authorities, depending on the spread necessary to cover administrative and servicing costs. Once the specified interest rate is reached, the bonds must become fixed-rate instruments. The conditions for conversion are usually specified in detail in the bond documents so that it is automatic and the authority has no further decision to make. This assures that the conversion is considered a repricing of the bond, rather than a refunding, and makes it unnecessary for authorities to seek repeated approvals for the same initial offering.

Interest rates on variable-rate bonds change weekly, making these instruments much like seven-day commercial paper. Consequently, a bank letter of credit is generally necessary to back up any redemptions before the stated maturity date. An independent indexing or remarketing agent sets the weekly rate, which is generally based on the interest index for tax-exempt bonds similar in rating and remaining maturity. The variable rate is set at whatever the indexing or remarketing agent determines is the minimum necessary to resell the bonds at par.5/

In the recent past, authorities have issued several types of flexibonds. The following tables indicate the spreads that would result from a typical variable-rate issue that is convertible to a fixed-rate, long-term bond if interest rates on securities with similar ratings and remaining maturities drop to 7.5 percent. The example is based on assumptions that reflect current market conditions and practices; however, these could change, and the current diversity of student loan bond issues makes conclusions based on any particular example difficult.

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5. For the authorities, variable-rate financing involves some risk because, unlike the yield on student loans, the rate on the bonds is not directly pegged to the T-bill. If the variable-rate tax-exempt bond index rises more rapidly than T-bill rates, the result could be costly to the authorities. On the other hand, if the index falls more rapidly than T-bill rates, authorities can more than cover their costs. A few years ago, some authorities issued variable-rate bonds pegged to the T-bill rate. These had the advantage of locking in a spread; however, the bonds were hard to sell, and they traded poorly on the secondary market. This was because variable-rate tax-exempts are "put" bonds, which means that once a week the issuer must be prepared to redeem them. The bonds, therefore, have to carry a price that makes it possible to sell them at par. If the bonds are pegged to the rate on another security, such as T-bills, they could sell at, above, or below par. Any number of events, such as changes in tax law, could have a marked effect on the relationship between short-term tax-exempt rates and T-bill rates and, therefore, on the value of the securities. Consequently, it is virtually impossible to lock in a spread.

With variable-rate financing, the lower the T-bill rate, the larger the spread between an authority's cost of financing and its return on loans made or insured after October 1, 1980. Because of the guaranteed 9.5 percent yield on student loans financed with tax-exempt bonds, the spreads not only can exceed the amount necessary to cover servicing and operating costs, but at times also can result in excess arbitrage earnings. Under current law, excess arbitrage profits would result if yields on loans--excluding the SAP--exceed the interest on student loan bonds by more than 1.5 percentage points, plus reasonable administrative costs associated with bond issuance, such as letter of credit or insurance fees. The problem of excess arbitrage is most likely to arise with variable-rate financing when T-bill rates are low because the SAP is then a relatively small portion of the total yield on student loans (see Tables 1 and 2).

To date, the federal government has issued no regulations specifying how authorities should calculate yields on floating-rate bonds for purposes of determining whether or not they are earning excess arbitrage profits. If authorities earn excess arbitrage, their bonds could become taxable. At present, a "reasonable expectations" rule determines whether excess arbitrage has been earned. If an authority earns excess arbitrage, but did not or could not reasonably expect to have done so, no violation has occurred. The problem is that with variable-rate financing, reasonable expectations are hard to define. Accordingly bond counsel are advising authorities to put excess earnings into escrow. In the future, authorities may use excess funds to forgive student loans.

Over the long term, authorities benefit most from fixed-rate financing, not only because the terms of the bonds then match the terms of the loans more closely, but also because excess arbitrage ceases to be a problem. The spreads on fixed-rate bonds increase as interest rates rise. At the same time, the SAP, which is exempt from arbitrage restrictions, becomes an increasingly higher proportion of the loan yield, so that authorities need not be concerned about earning excess arbitrage profits (see Table 3). In other words, whatever their profits, the authorities may keep them.6/ Once an authority locks in a fixed interest rate, it is protected from losses if T-bill rates fall because of the 9.5 percent minimum guaranteed yield on student loans, and it can make substantial profits if T-bill rates rise above 9 percent.

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6. If a program closed down, however, profits would go to the state or a political subdivision.

TABLE 1. STATE AUTHORITY SPREADS ON 8 PERCENT STUDENT LOANS FINANCED WITH VARIABLE-RATE BONDS UNDER CURRENT LAW

T-Bill Rate	Cost of Funds[a]	SAP[b]	Return on 8 Percent Loans[c]	Spread[d]	Maximum Permissible Spread[e]
5.0	5.50	1.50	9.50	4.00	3.00
6.0	5.50	1.50	9.50	4.00	3.00
7.0	5.50	1.50	9.50	4.00	3.00
8.0	5.50	1.75	9.75	4.25	3.25
9.0	5.63	2.25	10.25	4.62	3.75
10.0	6.25	2.75	10.75	4.50	4.25
11.0	6.88	3.25	11.25	4.37	4.75
12.0	7.50	3.75	11.75	4.25	5.25
13.0	8.13	4.25	12.25	4.12	5.75
14.0	8.75	4.75	12.75	4.00	6.25
15.0	9.38	5.25	13.25	3.87	6.75

SOURCE: Congressional Budget Office.

a. Assumes that on average the weekly variable rate will be 62.5 percent of the T-bill rate, but not less than 5.5 percent. Some bond issues have interest rate floors; others do not. Interest rates change weekly and reflect the price necessary to remarket the bonds at par. The relationship of this price to the T-bill rate will fluctuate. Two indexes of short-term tax-exempt interest rates that have been used to set prices for variable-rate student loan bonds are the Kenny Index and the Banker's Trust Tax-Exempt Note Rate (TENR). A few years ago, variable-rate student loan bonds were frequently priced at TENR plus between 0.25 and 0.50 percentage points. The average of the ratio for the Kenny Index to the T-bill from January 1984 to June 1985 and TENR + 0.375 percentage points to the T-bill from January 1982 to June 1985 was 62.5 percent. Variable and short-term municipal rates generally have been between 55 percent and 70 percent of rates on taxable money market instruments. The cost of funds does not include letter of credit fees, which range from 0.375 percent to 0.875 percent a year, or other administrative costs associated with bond issuance. On average, letter of credit fees alone would reduce spreads by about 0.625 percentage points a year.

b. The special allowance payment (SAP) = [T-bill - 4.5] percent x 0.5, but not less than 1.5 percent.

c. The return on loans is the borrower's interest payment plus the SAP, but is not less than 9.5 percent.

d. Without an interest rate floor, the spreads at lower T-bill rates would be 6.37 percentage points when the T-bill is 5 percent; 5.75 when the T-bill is 6 percent; 5.12 when the T-bill is 7 percent; and 4.75 when the T-bill is 8 percent. These spreads would result in substantial excess arbitrage profits.

e. The maximum permissible spread is equal to the SAP plus 1.5 percentage points. Where the maximum permissible spread is less than the actual spread, the difference, minus letter of credit and other fees associated with bond issuance, represents excess arbitrage profits that, if kept, might jeopardize tax-exemption of the bonds. If the actual spread is smaller than or equal to the maximum, then the authorities are operating within the arbitrage provisions of current law.

TABLE 2. STATE AUTHORITY SPREADS AND MAXIMUM PERMISSIBLE SPREADS UNDER CURRENT ARBITRAGE REGULATIONS ON 7, 8, AND 9 PERCENT STUDENT LOANS FINANCED WITH VARIABLE-RATE BONDS[a,b,c]

T-Bill Rate	Pre-October 1, 1980, 7 Percent Loans		Post-October 1, 1980, Loans					
	Spread	Maximum Spread	7 Percent Spread	Maximum Spread	8 Percent Spread	Maximum Spread	9 Percent Spread	Maximum Spread
5.0	5.37	3.00	6.37	4.00	6.37	3.00	6.37	2.00
6.0	5.75	4.00	5.75	4.00	5.75	3.00	5.75	2.00
7.0	6.12	5.00	5.12	4.00	5.12	3.00	5.37	2.25
8.0	6.50	6.00	4.50	4.00	4.75	3.25	5.25	2.75
9.0	6.87	7.00	4.12	4.25	4.62	3.75	5.12	3.25
10.0	7.25	8.00	4.00	4.75	4.50	4.25	5.00	3.75
11.0	7.62	4.00	3.87	5.25	4.37	4.75	4.87	4.25
12.0	8.00	10.00	3.75	5.75	4.25	5.25	4.75	4.75
13.0	8.37	11.00	3.62	6.25	4.12	5.75	4.62	5.25
14.0	8.75	12.00	3.50	6.75	4.00	6.25	4.50	5.75
15.0	9.12	13.00	3.37	7.25	3.87	6.75	4.37	6.25

SOURCE: Congressional Budget Office.

a. Assumes that the authorities' cost of funds will average 62.5 percent of T-Bill rates. This does not include letter of credit fees, which range between 0.375 percent and 0.875 percent a year, or other administrative costs associated with bond issuance.

b. Spreads are based on the current formula for calculating the special allowance payment. The SAP on loans originated between October 1, 1980, and October 1, 1981, is rounded up to the nearest 1/8 of 1 percent. Loans made before October 1, 1980, are eligible for the full SAP.

c. Under current law, the maximum permissible spread is equal to the SAP plus 1.5 percentage points. Where the maximum permissible spread is less than the actual spread, the difference, minus letter of credit and other fees, represents excess arbitrage profits that, if kept, might jeopardize tax-exemption of the bonds. The problem does not arise if the actual spread is equal to or smaller than the maximum.

TABLE 3. STATE AUTHORITY SPREADS ON STUDENT LOANS FINANCED WITH FIXED-RATE 7.5 PERCENT BONDS

	Spreads				Maximum Permissible Spreads[a]			
T-Bill Rate	Pre-10/1/80 7% Loans	7% Loans[b]	8% Loans[b]	9% Loans[b]	Pre-10/1/80 7% Loans	7% Loans	8% Loans	9% Loans
5.0	1.0	2.00	2.00	2.00	3.0	4.00	3.00	2.00
6.0	2.0	2.00	2.00	2.00	4.0	4.00	3.00	2.00
7.0	3.0	2.00	2.00	2.25	5.0	4.00	3.00	2.25
8.0	4.0	2.00	2.25	2.75	6.0	4.00	3.25	2.75
9.0	5.0	2.25	2.75	3.25	7.0	4.25	3.75	3.25
10.0	6.0	2.75	3.25	3.75	8.0	4.75	4.25	3.75
11.0	7.0	3.25	3.75	4.25	9.0	5.25	4.75	4.25
12.0	8.0	3.75	4.25	4.75	10.0	5.75	5.25	4.75
13.0	9.0	4.25	4.75	5.25	11.0	6.25	5.75	5.25
14.0	10.0	4.75	5.25	5.75	12.0	6.75	6.25	5.75
15.0	11.0	5.25	5.75	6.25	13.0	7.25	6.75	6.25

SOURCE: Congressional Budget Office.

a. Under current law, the maximum permissible yield spread is equal to the SAP plus 1.5 percentage points. Where the maximum permissible spread is less than the actual spread, the difference, minus letter of credit and other fees associated with bond issuance, represents excess arbitrage profits that, if kept, might jeopardize tax-exemption of the bonds. The problem does not arise if the actual spread is equal to or smaller than the maximum.

b. Based on the current formula for calculating the SAP. The SAP on loans originated between October 1, 1980, and October 1, 1981, is rounded up to the nearest one-eighth of 1 percent. Loans originated before October 1, 1980, are eligible for the full SAP.

Although recent bond issues are potentially quite profitable, not all bonds issued in the past few years have been so. Some agencies have issued bonds at variable rates between 70 percent and 75 percent of the T-bill rate, with minimum rates set between 5.5 percent and 6.0 percent. The spreads on 8 percent loans made from the proceeds of bonds yielding 75 percent of the T-bill rate, but not less than 6 percent, are generally sufficient and sometimes more than sufficient to cover costs, but they will not result in huge windfall profits (see Table 4).

Some authorities have issued fixed-rate bonds within the past two years at interest rates between 9.0 percent and 10.0 percent. The spreads on loans made from the proceeds of these bonds are much narrower, and, in some instances, authorities have used the surpluses from previous bond issues to pay issuing costs, underwriters' discounts, and letter of credit fees. This lowers the interest cost and thereby avoids negative arbitrage. For example, in December 1984, the Virginia Educational Loan Authority (VELA) issued $90 million in student loan bonds with a yield of 9.615 percent. VELA paid the issuance costs and the underwriter's discount from surpluses generated from earlier loans. As long as T-bill rates are below 11 percent or 12 percent, an authority making direct loans at 8 percent and paying borrowing costs of 9.5 percent either would have to pay administrative and servicing costs out of surplus funds, or it would have to find some other source of income. At T-bill rates above 12 percent, the spreads are more than sufficient to cover costs. As long as students are in school, the costs of carrying loans are small. If interest rates remain low, the agency can sell its loan portfolio to Sallie Mae before the beginning of the repayment period and use the proceeds to retire the bonds.

Taxable Financing

The practices of authorities and their cost of funds have varied. Much has depended on how much funding an authority has needed and when, the surpluses available from previous bond issues, and, in recent years, their ability to issue tax-exempt bonds.

Since October 1983, the Department of Education has approved special allowance payments for loans financed with tax-exempt bonds only upon being convinced that taxable financing was unavailable or infeasible. By and large, taxable sources of financing have been available, since Sallie Mae has been willing to make loans to student loan authorities. In 1985, state authorities' drawdowns of loans from Sallie Mae more than doubled from $235 million in 1984 to $556 million.

Taxable financing has not always been feasible, however, either because of state laws prohibiting authorities from borrowing at taxable rates, or because the loan spreads were insufficient to cover costs. Where Sallie Mae has provided the financing, the authorities have generally paid interest equal to T-bill rates plus 1.25 percentage points. The yield on student loans that are financed with taxable funds is equal to the bond equivalent T-bill rate plus 3.50 percentage points. The resulting spread of 2.25 percentage points may or may not be sufficient to cover costs, or it may be adequate in the early years of a loan, but not later because as loan

TABLE 4. STATE AUTHORITY SPREADS ON 8 PERCENT STUDENT LOANS FINANCED WITH VARIABLE-RATE BONDS ASSUMING COST OF FUNDS AT 75 PERCENT OF T-BILL RATES

T-Bill Rate	Cost of Funds[a]	SAP	Return on 8 Percent Loans	Spread	Maximum Permissible Spread[b]
5	6.00	1.50	9.50	3.50	3.00
6	6.00	1.50	9.50	3.50	3.00
7	6.00	1.50	9.50	3.50	3.00
8	6.00	1.75	9.75	3.75	3.25
9	6.75	2.25	10.25	3.50	3.50
10	7.50	2.75	10.75	3.25	3.25
11	8.75	3.25	11.25	3.00	3.00
12	9.00	3.75	11.75	2.75	2.75
13	9.75	4.25	12.25	2.50	2.50
14	10.50	4.75	12.75	2.25	2.25
15	11.25	5.25	13.25	2.00	2.00

SOURCE: Congressional Budget Office.

a. Assumes that authorities' cost of funds will average 75 percent of T-Bill rates, but not less than 6 percent.

b. Under current regulations, the maximum permissible spread is equal to the SAP plus 1.5 percentage points. At present, letter of credit fees and other costs associated with issuing bonds do not count against that limit.

portfolios get smaller, servicing costs, as a percentage of outstanding principal, rise.7/

Some authorities--VELA, and the New England Education Loan Marketing Corporation (Nellie Mae), to name only two--have obtained taxable loans from foreign banks or from consortiums that have included foreign banks at rates as good or better than those offered by Sallie Mae. Since Sallie Mae and state student loan authorities compete with each other as purchasers of loans in the secondary market, many authorities prefer other sources of credit. These sources, however, are limited largely to foreign banks.8/ U.S. banks would have to charge more for their loans because their cost of borrowing is substantially higher than Sallie Mae's. 9/

Tax-Exempt Financing without SAPs

Instead of seeking taxable financing, in recent months a few authorities have issued tax-exempt bonds without the Department of Education's approval for special allowance payments. This has been possible because interest rates on variable-rate bonds have been low enough to provide the authorities with a wider spread than would be available with taxable financing. For bonds issued before January 1, 1986, which for some time was the official effective date for most of the provisions in pending tax legislation, authorities could invest the proceeds in nonpurpose obligations at unrestricted yields for up to three years. This provision in current law is

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7. The issue between student loan authorities and the Department of Education is as likely to revolve around the assumptions underlying the computation of the spread as on its adequacy. In order to determine the financial feasibility of a loan, whether taxable or tax-exempt, it is necessary to project the amount of loans that will be made or acquired by certain dates; the amount and timing of student loan payments, federal interest subsidy and special allowance payments, including any lags; inflation rates and their effects on administrative and servicing costs; T-bill rates; average loan and account sizes; the proportion of loans in repayment or default relative to the total portfolio, and so forth. In projecting cash flows, student loan authorities have often reached conclusions on the feasibility of taxable financing that were different from those of the Education Department and Sallie Mae because the underlying assumptions were different.

8. Large Japanese, Swiss, and German banks are making loans to state authorities on slightly better terms than Sallie Mae and much better terms that U.S. banks could offer. They more than make up for the difference in rates by selling participations in the loans to smaller, cash-heavy banks in their home countries.

9. For example, in March 1985, Sallie Mae issued $350 million of four-floating-rate paying slightly more than 50 basis points above the 91 day T-bill rate. At the same time, Citicorp issued $100 million in three-year floating-rate notes yielding 75 basis points above the T-bill rate. See Congressional Budget Office, *Government-Sponsored Enterprises and Their Implicit Federal Subsidy: The Case of Sallie Mae* (December 1985), p. 14.

much more lenient than the Department of Education's regulations (see Chapter II). The more liberal arbitrage regulations in current law to some extent compensate the authorities for forgone special allowance payments.

Generally, authorities that have elected to use tax-exempt bonds without a SAP will issue securities with convertible financing features. If interest rates on long-term bonds drop to a desirable level, these issues will convert from variable-rate to fixed-rate instruments. All of these issues have letter of credit backing, so if short-term tax-exempt rates rise relative to taxable rates and the resulting spreads become too narrow, the authority can draw on its line of credit temporarily, call the bonds, and subsequently negotiate a taxable loan with a SAP. This approach provides the authorities with greater flexibility than simply opting for taxable financing either to avoid the approval process or in response to having an application for special allowance payments disapproved.

Where no special allowance payments are involved, tax-exempt student loan bonds are subject to the general arbitrage restrictions in current law. The authorities will have to keep track of their arbitrage earnings and if they exceed the permissible spread of 1.5 percentage points, plus administrative costs, they may forgive a portion of the student loan. (This restriction does not apply to investments in reserve funds or for temporary periods. For details on general arbitrage regulations, see Chapter II.)

SURPLUS FUNDS

Some authorities have accumulated surpluses that would cover possible shortfalls resulting from taxable or tax-exempt financing. The sources of these surpluses include not only the spreads between borrowing costs and loan yields, but also interest earned on reserve funds, unobligated bond proceeds, and retained earnings from previous years.

Reserves

The agencies that rate bonds require that a portion of each bond issue be set aside to cover debt service in case of revenue shortfalls. Under current law, authorities may set aside as much as 15 percent of a bond issue in a "reasonably required reserve and replacement fund." The likelihood that a student loan bond issue will default is small because federal guarantees secure the loans. The purpose of debt service reserve accounts is to compensate for insufficient revenues that might result, for example, from delinquent student loan payments or sharp reductions in interest rates and special allowance payments.

Frequently, authorities set aside less than the maximum amount permitted for debt service reserves. Although no two issues are alike, the common practice is to set aside 10 percent of the principal amount of a bond issue, or an amount equal to one year's debt service payments. The interest earned on debt service reserves is exempt from ordinary arbitrage restrictions. Over time, these reserves can themselves generate sizable surpluses.

Unobligated Bond Proceeds

In order to reduce arbitrage profits, the Department of Education's regulations have required authorities to begin using the proceeds of tax-exempt bonds within six months of issuing them and to expend the proceeds with one to two years. Where no special allowance payments are involved, the limit set by the tax code for making or buying loans is three years. During these temporary periods, authorities may earn unlimited arbitrage without incurring any penalties. The arbitrage earned during temporary periods is generally used to pay for issuing costs, which include underwriters' discounts, legal fees, and printing fees. These costs can amount to between 1 percent and 3 percent of a bond issue. In some cases, the three-year limit for using bond proceeds was more than sufficient to cover issuing costs and may have contributed to authorities' overestimating the amounts of student loan funds that they needed. For example, the California Student Loan Authority issued $120 million in bonds and used only $32 million before the three-year temporary period had ended. The Arizona Student Loan Finance Corporation has also used very little of a $100 million issue.

THE PROFITABILITY OF STUDENT LOAN AUTHORITIES

The spreads on student loan bonds, coupled with interest earned on debt service reserve funds and on unobligated bond proceeds, can make it possible for authorities to earn profits and accumulate surpluses. Some authorities, particularly those established before 1980, have been running profitable operations for many years.

Two measures of profitability are rates of return to equity and assets. The first measure is inapplicable to student loan authorities because they are nonprofit corporations with no equity investors. The authorities do have assets, however, and it is possible to compare the rates of return on their income-earning assets with those of other financial inermediaries (see Table 5).10/

The annual rate of return on assets represents the excess of revenues over expenses as a percentage of average asset holdings during the year. The larger the percentage, the more profitable the operation. As Table 5 indicates, Sallie Mae's performance in the past few years has been superior to that of the largest commercial banks, and state student loan authorities frequently have been substantially more profitable than either. In other words, the arbitrage provisions in current tax law have made it possible for state student loan authorities to accumulate large cash surpluses from year to year.

Another measure of a financial intermediary's profitability is its net interest spread, which is the return on all earning assets minus the cost of all borrowed funds. Although this information was less readily available, the experience of the Minnesota Higher Education Coordinating Boad is fairly typical of older, established authorities. The Board has been a lender of second resort since 1974. Its assets at the end of 1984 amounted to nearly $500 million, and its net interest spread was 5.4 percent. Sallie Mae's net interest spread for the first nine months of 1985 was 1.73 percent.

THE USE OF SURPLUS FUNDS

Section 103(e) of the Internal Revenue Code states that nonprofit student loan corporations must use their net income (after making reserve fund deposits and paying debt service and expenses) either to purchase additional student loans or to make payments to the state or any of its political subdivisions. The Code imposes no restrictions on state use of surplus funds. This is much the same rule that applies to the profits of other tax-exempt bond authorities, but they are generally subject to yield restrictions that make it more difficult for them to accumulate large surpluses.

In general, authorities maintain separate funds for each bond issue. Surpluses accumulate in each fund. Once debt dervice requirements are met, authorities may transfer excess monies to an operating fund, which is used for rent, overhead, and other administrative expenses. At times, monies from the general fund are also used to pay bond issuance expenses and underwriters' discounts.

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10. Although return on equity is the more common measure of profitability, for-profit financial institutions, particularly thinly capitalized intermediaries, frequently use return on assets as an indicator of performance because it is less responsive to small changes in equity.

TABLE 5. RATES OF RETURN ON AVERAGE INCOME-EARNING ASSETS FOR LARGE COMMERCIAL BANKS, SALLIE MAE, AND SELECTED STUDENT LOAN AUTHORITIES

	Percent Return on Assets[a]			
Institution	1982	1983	1984	1985
Commercial Banks[b,c]	0.64	0.56	0.53	0.70
Sallie Mae[c]	0.62	0.83	1.00	0.97
Arkansas Student Loan Authority	3.19	2.21	2.44	1.79
Colorado Student Obligation Bond Authority[d]	0.96	1.02	1.21	0.57
Kentucky Higher Education Student Loan Corporation	4.32[e]	0.49	1.50	1.04
Missouri Higher Education Loan Authority	NA	0.33	1.08	0.93
Minnesota Higher Education Coordinating Board	7.17	2.86	3.21	3.73
New Mexico Educational Assistance Foundation	3.36	2.40	1.97	1.61
South Dakota Student Loan Assistance Corporation	4.25	3.35	1.36	1.00[f]
Virginia Educational Loan Authority	4.35	1.84	0.83[f]	2.34

SOURCES: Federal Deposit Insurance Corporation, Sallie Mae, and annual reports and official bond offering statements of student loan authorities listed above.

a. Year ended June 30, unless otherwise indicated.

b. Represents after-tax returns of banks with assets greater than $5 billion.

c. Year ended December 31.

d. Year ended September 30.

e. Not comparable with succeeding years because of change in accounting procedures.

f. After taking into account loss from early extinguishment of bonds.

In practice, most authorities use surpluses to make or purchase additional student loans or for related expenses, and many would welcome a change in the law that would require them to do so. At present, if a state wants to claim the surpluses for its general funds, as has happened, for example, in Texas, the authorities have little choice but to comply. Some authorities have made arrangements to turn over their surplus funds to related agencies. For example, the Kentucky Student Loan Corporation turns over its surpluses to the Kentucky Higher Education Assistance Authority, which, among other activities, guarantees and services its loans. In 1983, the Authority made a grant of $3.5 million to the state general fund as a one-time reimbursement for amounts previously appropriated to the Authority. In Wisconsin, surplus funds sometimes help pay administrative costs of the state's higher education grant and loan program.

Once sufficient surpluses have accumulated in an authority's general fund, spending on salaries, fringe benefits, and equipment and overhead may increase, unless the excess funds are necessary to cover bond issuance costs or related expenses. At present, authorities have extensive opportunities to accumulate surpluses and a great deal of discretion in using them.

[illegible]

change in the [illegible]

[illegible] example, in Texas, [illegible]

[illegible]

CHAPTER IV

THE COSTS TO THE FEDERAL GOVERNMENT OF STUDENT LOAN BONDS

The major federal costs of student loan bonds stem from revenue forgone because interest on the bonds is not subject to federal income taxation. Student loan bonds may substitute for conventional financing, or they may provide a source of new funds. To the extent that the bonds make possible loans that otherwise would not be made, the additional funding will involve a further cost to the federal government. To the extent that tax-exempt bonds substitute for taxable sources of funds, lower budgetary outlays resulting from the reduced special allowance payments will offset revenue losses. Whether the offset is partial or complete depends on whether interest rates are high or low and on how revenue losses from tax-exempt bonds are measured.

In most cases, financing GSLs with tax-exempt bonds is more costly to the federal government than using taxable financing, primarily because of federal revenue losses. In a few cases, when Treasury bill rates are fairly high, tax-exempt financing may be less costly to the federal government. At current T-bill rates, tax-exempt financing of student loans is the more expensive alternative. Under present law, T-bill rates would have to be higher than 13 percent in order for tax-exempt financing to be a less costly source of student loan funds from the federal government's perspective. If, however, the Congress passes legislation lowering marginal tax rates, federal revenue losses from tax-exempt financing will decline.

PROBLEMS IN ESTIMATING REVENUE LOSSES

The amount of federal revenue loss stemming from the tax-exemption of interest on state and local bonds in general, and student loan bonds in particular, has been controversial for several years. The Congressional Budget Office, the Treasury Department, and the Joint Committee on Taxation have based their estimates of revenue loss on the view that tax-exempt financing ultimately displaces taxable financing. When new issues of tax-exempt securities come to market, some investors will move from partially taxable to tax-exempt investments and others will switch from fully to partially taxable holdings. The cost to the federal government of providing tax exemption on state and local bonds in any year thus depends on the volume of bonds issued, the prevailing interest rates on alternative taxable securities, and the combined marginal tax rates of new investors in tax-exempt and partially tax-exempt securities. While bond volume and interest rates are matters of fact, the marginal tax rates of investors who switch from one type of security to another are difficult to estimate.

In the late 1970s, economists at the Treasury Department suggested that, since the significant measure in determining revenue loss is the net change in all portfolio holdings resulting from tax-exempt bond issues, the relevant marginal tax bracket would be a combination of the tax rates of the last investor who switches from partially taxable to tax-exempt holdings and the investor who moves from fully taxed to partially taxed holdings. This combined rate would roughly correspond to the spread between taxable and tax-exempt interest rates, which between 1970 and 1980 averaged about 30 percent for corporate and municipal bonds with similar ratings.[1] In the late 1970s and into the 1980s, CBO used this model--and the 30 percent marginal tax rate--to estimate revenue losses from tax-exempt bonds.[2]

This method of measuring revenue losses rested on the assumption that investors seek to maximize after-tax income. This means that investors in marginal tax brackets below the yield spread would hold taxable securities; those in higher brackets would hold tax-exempt bonds. Several analysts criticized the model, arguing that it overstated revenue losses from tax-exempt bonds by ignoring the role that considerations of risk and liquidity play in determining investor behavior. The desire to maximize after-tax income, they maintained, was an insufficient basis for predicting patterns of absorption and displacement in financial portfolios. In the absence of definitive theoretical or empirical guidance in describing portfolio reallocations, these economists conjecture that investors will absorb new issues of tax-exempt bonds in proportions equal to those preexisting in the portfolios of households and institutions. Thus, they postulate that individual taxpayers respond to new issues of tax-exempt bonds by absorbing the additional supplies and reducing their holdings of corporate equity. In turn, pension funds purchase additional corporate equity and sell fully taxable bonds. Because pension funds pay no taxes on the income from their investments, the marginal tax rate of new investors in tax-exempt bonds is much lower than 30 percent and the revenue losses from their use is much less.3/

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[1] Harvey Galper and Eric Toder, "Modelling Revenue and Allocation Effects of the Use of Tax-Exempt Bonds for Private Purposes," U.S. Treasury, Office of Tax Analysis, Paper 44 (December 1980).

[2] The spread between long-term tax-exempt and taxable bonds has in recent years been between 20 percent and 25 percent. In the past few years, the Treasury Department and the Joint Committee on Taxation have used an average marginal tax rate of 35 percent in estimating revenue losses from tax-exempt bonds. This higher rate reflects purchases of tax-exempt bonds by high-bracket taxpayers.

In fact, the portfolio adjustments that occur in response to new issues of tax-exempt bonds are more complex than either the original model or its proposed alternative implies. Neither model provides empirical evidence of the adjustments that take place. The first rests on an oversimplified view of investor behavior, while the second acknowledges the complexity of investor behavior, but provides no theory or facts to support the examples of portfolio adjustments that are assumed to occur. In the absence of empirical evidence, the appropriate marginal tax rate for estimating revenue losses from tax-exempt bonds is speculative; it might be higher or lower than the yield spread between tax-exempt and taxable securities.

For the present study, CBO has based its analysis on a general equilibrium model that simulates changes in the allocation of capital stock resulting from an increase in the supply of tax- exempt bonds.4/ This model--developed last year, updated more recently, and coupled with some sensitivity analysis--forms the basis of the estimates of revenue losses in

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3. See especially Roger Kormendi and Thomas Nagle, "The Interest Rate and Tax Revenue Effects of Mortgage Revenue Bonds," in George G. Kaufman, ed., *Efficiency in the Municipal Bond Market: The Use of Tax-Exempt Financing for Private Purposes* (Greenwich, Connecticut: JAI Press, 1981). See also George D. Friedlander, John C. Morris, and Michael E. Toth, *Student Loan Revenue Bonds: An Examination of the Cost of Tax-Exempt Financing*, Smith Barney, Harris Upham & Company, Inc., Fixed Income Research (March 5, 1984).

4. Eric Toder and Thomas S. Neubig, "Revenue Cost Estimates of Tax Expenditures: The Case of Tax-Exempt Bonds," *National Tax Journal*, vol. XXXVIII, no. 3 (September 1985), pp. 395-414.

this report (see Appendix A for details).5/ These analyses indicate that in estimating revenue losses from tax-exempt bonds, it has been appropriate to assume a marginal tax rate of between 25 percent and 35 percent. These rates are higher than the 20 percent to 25 percent spread between tax-exempt and taxable financing in recent years, suggesting that individuals in higher tax brackets may be absorbing more new issues than income maximization theories alone would explain.

THE COSTS TO THE FEDERAL GOVERNMENT OF TAX-EXEMPT VERSUS TAXABLE FINANCING

Under most, but not all, circumstances, financing GSLs with tax-exempt bonds appears to be more expensive than using conventional financing. How much more expensive depends on general interest rate levels: the lower the T-bill rate, the greater the relative cost of using tax-exempt bonds. The comparison of different financing methods depends on how much the savings to the government resulting from the lower special allowance payment offset the costs of using tax-exempt bonds. At T-bill rates below 7.5 percent, savings are nonexistent because of the SAP floor, which guarantees state authorities a minimum return on GSLs of 9.5 percent (see Chapter III). As T-bill rates rise above 7.5 percent, the savings from the lower SAP grow relative to the increases in the costs of tax-exempt financing, eventually reaching a point where taxable financing becomes the more expensive alternative. (This happens because for every percentage point increase in T-bill rates, the reduced SAP rate will increase by one-half of a percentage point, while the interest rates that determine the costs of tax-exempt bonds will increase by a much smaller amount.)

The following tables show the absolute and comparative costs of tax-exempt and taxable financing of GSLs, using marginal tax rates ranging from 22.5 percent to 35 percent to estimate revenue losses and taking into account the reduced SAP for loans financed with tax-exempt bonds. The comparative information is valid only to the extent that tax-exempt financing substitutes for taxable financing. To the extent that tax-exempt bonds make possible more student loan borrowing than would otherwise occur, the federal government will incur additional costs. These costs will be the sum of the revenue losses from using tax-exempt bonds and the special allowance (at one-half of the regular rate).

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5. For a description of the updated model, see Harvey Galper, Robert Lucke, and Eric Toder, *Taxation, Portfolio Choice, and The Allocation of Capital: A General Equilibrium Approach*, Brookings Discussion Papers in Economics (Washington, D.C.: The Brookings Institution, March 1986).

Assuming a marginal tax rate of 22.5 percent, which is roughly equal to the differential in recent years between tax-exempt and taxable interest rates, would make tax-exempt financing 31 percent more costly when the T-bill is 5 percent and 2 percent less costly when the T-bill is 15 percent. Following this model, the difference in cost between tax-exempt and taxable financing is less than 5 percent once T-bill rates rise above 9 percent (see Table 6). Assuming a marginal tax rate of 25 percent, the cost of tax-exempt financing is 33 percent greater than taxable financing when the T-bill rate is 5 percent, but only 1 percent more expensive when the T-bill hits 15 percent (see Table 7). Assuming a 35 percent marginal tax rate, tax-exempt financing is 42 percent more costly when the T-bill is 5 percent and 13 percent more costly when the T-bill is 15 percent (see Table 8).

All of these cost comparisons are based on long-term financing, a GSL interest rate of 8 percent, and current tax law. When students start to repay their loans, the federal government's interest subsidy costs decline. At that point the differentials between taxable and tax-exempt financing would be greater, but the break-even points would be the same. The break-even points would be at lower interest rates, however, if the relative costs of tax-exempt financing decreased in response to legislation lowering marginal tax rates. The cost data are for GSLs and not for PLUS loans, which constituted only 7 percent of loan commitments in the first six months of fiscal year 1986. PLUS loans are also eligible for special allowances, but because the interest rate on the loans is currently 12 percent, the special allowance is smaller than for GSLs and hits zero when T-bill rates are 8.5 percent or lower. With PLUS loans, too, no in-school interest subsidy is paid. For these reasons, financing PLUS loans with tax-exempt bonds is considerably more expensive than using taxable funds (see Table 9). When T-bill rates are 9 percent, tax-exempt financing of PLUS loans is minimally six times more costly than taxable financing. At higher T-bill rates, the differentials are smaller. When T-bill rates are 15 percent, tax-exempt financing is between 26 percent and 68 percent more expensive. The volume of PLUS loans, however, has so far been small.

Tax-Exempt Financing without the SAP

Some authorities have chosen to issue tax-exempt bonds and to do without the SAP (see Chapter III). With no SAP, tax-exempt financing is on average no more expensive to the federal government than taxable financing. More often than not, it is less expensive (see Table 10).

Using a 35 percent marginal tax rate for estimating revenue losses from tax-exempt bonds, student loan bonds would be 24 percent more costly

TABLE 6. ESTIMATED ANNUAL COSTS OF PROVIDING $1 BILLION IN 8 PERCENT GSLs THROUGH TAXABLE VERSUS TAX-EXEMPT FINANCING ASSUMING A 22.5 PERCENT MARGINAL TAX RATE[a]
(In millions of dollars)

	Taxable Financing		Tax-Exempt Financing			
T-Bill (percent)	SAP	SAP + I[b]	SAP + I[c]	Tax Expenditures[d]	Total	Difference (percent)[e]
5.0	5.0	85.0	95.0	16.5	111.5	+31.2
6.0	15.0	95.0	95.0	19.8	114.8	+20.8
7.0	25.0	105.0	95.0	23.0	118.0	+12.4
8.0	35.0	115.0	97.5	26.3	123.8	+ 7.7
9.0	45.0	125.0	102.5	29.6	132.1	+ 5.7
10.0	55.0	135.0	107.5	32.9	140.4	+ 4.0
11.0	65.0	145.0	112.5	36.2	148.7	+ 2.6
12.0	75.0	155.0	117.5	39.5	157.0	+ 1.3
13.0	85.0	165.0	122.5	42.8	165.3	+ 0.2
14.0	95.0	175.0	127.5	46.1	173.6	- 0.8
15.0	105.0	185.0	132.5	49.4	181.9	- 1.7

SOURCE: Congressional Budget Office.

a. This comparison is based on the assumption that the ratio of bonds issued to loans made is 1.1:1.0. The unloaned proceeds are deposited in a reserve fund.

b. The cost of conventionally-financed loans is the student interest payment plus the SAP. I = $1 billion x 8 percent. The SAP = $1 billion x (T-bill - 4.5) percent.

c. The interest subsidy costs on loans financed with tax-exempt bonds are equal to the 8 percent student interest payment plus one-half of the regular SAP, but not less than 1.5 percent.

d. Tax expenditures = $1 billion x [1.33 x T-bill] x 22.5 percent x 1.1. The revenue estimates are for long-term bonds. Long-term interest rates are assumed to be 1.33 times the T-bill, which reflects the average ratio of long-term AAA taxable bonds to the T-bill during the period 1982-1984. (Tax expenditures for short-term bonds would be based on lower interest rates and higher marginal tax rates.)

e. Represents the excess cost (+) or savings (-) of tax-exempt versus taxable financing.

TABLE 7. ESTIMATED ANNUAL COSTS OF PROVIDING $1 BILLION IN 8 PERCENT GSLs THROUGH TAXABLE VERSUS TAX-EXEMPT FINANCING ASSUMING A 25 PERCENT MARGINAL TAX RATE[a]
(In millions of dollars)

	Taxable Financing		Tax-Exempt Financing			
T-Bill (%)	SAP	SAP + I[b]	SAP + I[c]	Tax Expenditures[d]	Total	Difference (%)[e]
5.0	5.0	85.0	95.0	18.3	113.3	+33.3
6.0	15.0	95.0	95.0	22.0	117.0	+23.2
7.0	25.0	105.0	95.0	25.6	120.6	+14.9
8.0	35.0	115.0	97.5	29.3	126.8	+10.3
9.0	45.0	125.0	102.5	32.9	135.4	+ 8.3
10.0	55.0	135.0	107.5	36.6	144.1	+ 6.7
11.0	65.0	145.0	112.5	40.2	152.7	+ 5.3
12.0	75.0	155.0	117.5	43.9	161.4	+ 4.1
13.0	85.0	165.0	122.5	47.6	170.1	+ 3.1
14.0	95.0	175.0	127.5	51.2	178.7	+ 2.1
15.0	105.0	185.0	132.5	54.8	187.3	+ 1.2

SOURCE: Congressional Budget Office.

a. The ratio of bonds issued to loans made is 1.1:1.0.

b. The cost of conventionally-financed loans is the student interest payment plus the SAP. I = $1 billion x 8 percent. The SAP = $1 billion x (T-bill - 4.5) percent.

c. The interest subsidy costs on loans financed with tax-exempt bonds are equal to the 8 percent student interest payment plus one-half of the regular SAP, but not less than 1.5 percent.

d. Tax expenditures = $1.1 billion x [1.33 x T-bill] x 25 percent x 1.1. The revenue estimates are for long-term bonds. Long-term interest rates are assumed to be 1.33 times the T-bill, which reflects the average ratio of long-term AAA taxable bonds to the T-bill during the period 1982-1984. (Tax expenditures for short-term bonds would be based on lower interest rates and higher marginal tax rates.)

e. Represents the excess cost (+) or savings (-) of tax-exempt versus taxable financing.

TABLE 8. ESTIMATED ANNUAL COSTS OF PROVIDING $1 BILLION IN 8 PERCENT GSLs THROUGH TAXABLE VERSUS TAX-EXEMPT FINANCING ASSUMING A 35 PERCENT MARGINAL TAX RATE[a]
(In millions of dollars)

	Taxable Financing		Tax-Exempt Financing			
T-Bill (%)	SAP	SAP + I[b]	SAP + I[c]	Tax Expenditures[d]	Total	Difference (%)[e]
5.0	5.0	85.0	95.0	25.6	120.6	+42.1
6.0	15.0	95.0	95.0	30.7	125.7	+32.3
7.0	25.0	105.0	95.0	35.6	130.6	+24.4
8.0	35.0	115.0	97.5	41.0	138.5	+20.4
9.0	45.0	125.0	102.5	46.1	148.6	+18.9
10.0	55.0	135.0	107.5	51.2	158.7	+17.6
11.0	65.0	145.0	112.5	56.3	168.0	+16.4
12.0	75.0	155.0	117.5	61.5	179.0	+15.5
13.0	85.0	165.0	122.5	66.6	189.1	+14.6
14.0	95.0	175.0	127.5	71.7	199.2	+13.8
15.0	105.0	185.0	132.5	76.8	209.3	+13.1

SOURCE: Congressional Budget Office.

a. The ratio of bonds issued to loans made is 1.1:1.0.

b. The cost of conventionally-financed loans is the student interest payment plus the SAP. I = $1 billion x 8 percent. The SAP = $1 billion x (T-bill - 4.5) percent.

c. The interest subsidy costs on loans financed with tax-exempt bonds are equal to the student loan interest payment of 8 percent, plus one-half the regular SAP, but not less than 1.5 percent.

d. Tax expenditures = $1.1 billion x [1.33 x T-bill] x 35 percent x 1.1. The revenue estimates are for long-term bonds. Long-term interest rates are assumed to be 1.33 times the T-bill, which reflects the average ratio of long-term AAA taxable bonds to the T-bill during the period 1982-1984. (Tax expenditures for short-term bonds would be based on lower interest rates and higher marginal tax rates.)

e. Represents the excess cost (+) or savings (-) of tax-exempt versus taxable financing.

TABLE 9. ESTIMATED ANNUAL COSTS OF PROVIDING $1 BILLION IN 12 PERCENT PLUS LOANS THROUGH TAXABLE VERSUS TAX-EXEMPT FINANCING ASSUMING MARGINAL TAX RATES BETWEEN 22.5 AND 35.0 PERCENT

T-Bill (percent)	Taxable Financing[a]	Tax-Exempt Financing[b]	Tax-Exempt Financing[c]
5.0	--	16.5	25.6
6.0	--	19.8	30.7
7.0	--	23.0	35.6
8.0	--	26.3	41.0
9.0	5.0	32.1	48.6
10.0	15.0	40.4	58.7
11.0	25.0	48.7	68.8
12.0	35.0	57.0	79.0
13.0	45.0	65.3	89.1
14.0	55.0	73.6	99.2
15.0	65.0	81.9	109.3

SOURCE: Congressional Budget Office.

a. Taxable financing costs consist of the SAP, which is equal to T-bill -8.5 percentage points.

b. Tax-exempt financing costs consist of one-half of the regular SAP plus tax expenditures assuming a marginal tax rate of 22.5 percent.

c. Tax-exempt financing costs consist of one-half of the regular SAP plus tax expenditures assuming a marginal tax rate of 35 percent.

TABLE 10. ESTIMATED ANNUAL COSTS OF PROVIDING $1 BILLION IN 8 PERCENT GSLs THROUGH TAXABLE FINANCING VERSUS TAX-EXEMPT FINANCING WITH NO SPECIAL ALLOWANCE PAYMENT AT DIFFERENT MARGINAL TAX RATES (In millions of dollars)

		Marginal Tax Rate of 22.5 Percent		Marginal Tax Rate of 25 Percent		Marginal Tax Rate of 35 Percent	
T-Bill (percent)	Taxable Financing[a]	Tax-Exempt Financing[b]	Difference (percent)	Tax-Exempt Financing[c]	Difference (percent)	Tax-Exempt Financing[d]	Difference (percent)
5.0	85.0	96.5	+13.5	98.3	+15.6	105.6	+24.2
6.0	95.0	99.8	+ 5.0	102.0	+6.7	110.7	+16.5
7.0	105.0	103.0	- 1.9	105.6	+0.6	115.6	+10.1
8.0	115.0	106.3	- 7.6	109.3	-5.0	121.0	+ 5.2
9.0	125.0	109.6	-12.3	112.9	-9.7	126.1	+ 0.9
10.0	135.0	112.9	-16.4	116.6	-13.6	131.2	- 2.8
11.0	145.0	116.9	-19.4	120.2	-17.1	136.3	- 6.0
12.0	155.0	119.5	-22.9	123.9	-20.1	141.5	- 8.7
13.0	165.0	122.8	-25.6	127.6	-22.7	146.6	-11.2
14.0	175.0	126.1	-27.9	131.2	-25.0	151.7	-13.3
15.0	185.0	129.4	-30.1	134.8	-27.1	156.8	-15.2

SOURCE: Congressional Budget Office.

a. Taxable financing equals the SAP plus interest costs of $80 million.

b. Tax-exempt financing equals interest costs of $80 million plus tax expenditures based on a marginal tax rate of 22.5 percent.

c. Tax-exempt financing equals interest costs of $80 million plus tax expenditures based on a marginal tax rate of 25 percent.

d. Tax-exempt financing equals interest costs of $80 million plus tax expenditures based on a marginal tax rate of 35 percent.

Supplemental Loans

Some states have established loan programs for students who do not qualify for GSL or PLUS loans or who may need more funds than those programs provide. The loans provided through these supplemental programs are not guaranteed by the federal government, nor does the federal government bear any portion of the interest cost other than the subsidy implicit in tax-exempt financing. The costs of these programs to the federal government, then, are the tax expenditures resulting from forgone revenues.

CHAPTER V

POLICY ALTERNATIVES

The Congress might consider several alternatives to current law governing the use of tax-exempt student loan bonds. The options will vary depending upon whether the policy objective is to increase the availability of funds for student loans, to reduce or eliminate the surpluses state authorities accumulate from issuing bonds, or to reduce the deficit and the costs of tax-exempt financing.

- If its goal is to increase the availability of funds, the Congress either could provide additional incentives through higher special allowance payments (SAP) to make more taxable funds available for GSL and PLUS loans, or it could ease the restrictions on tax-exempt financing.
- If its primary purpose is to eliminate student loan authorities' profits, the Congress should consider lowering the special allowance payment for student loans financed with tax-exempt bonds or changing the arbitrage provisions of current law. This would have minimal effect on the availability of student loans.
- If the Congress wants to reduce the deficit and the costs of tax-exempt financing, it could consider lowering the special allowance and either imposing additional limits on the use of student loan bonds or eliminating them entirely, which would decrease the amount of available credit.

These measures are not mutually exclusive. For example, the Congress could ease the volume limits and, at the same time, tighten the arbitrage regulations for student loan bonds; or, it could impose additional limits and tighten arbitrage regulations. Alternatively, the Congress could increase the special allowance for taxable loans and eliminate tax-exempt student loan bonds entirely, or it could lower the special allowance and ease restrictions on the bonds.

This chapter examines policy alternatives and analyzes the effects of pending legislation on both tax-exempt and taxable student loan financing. In general, the bills to reauthorize the Higher Education Act of 1965 (H.R. 3700 and S. 1965) would facilitate tax-exempt financing of student loans, while certain pending tax reform provisions (H.R. 3838) would have the opposite effect. The Congress may wish to consider the tax-exempt bond provisions of pending tax legislation in the light of pending education legislation and vice versa to assure against unintended effects from the interaction of the two measures.

INCREASE THE AVAILABILITY OF STUDENT LOAN FUNDS

The Congress might increase the availability of student loans either by increasing the special allowance payments for loans financed with taxable funds or by easing restrictions on tax-exempt financing. The extent to which tax-exempt bonds affect loan availability, however, is difficult to quantify. To some degree, both direct lending and secondary purchases from the proceeds of tax-exempt bonds have displaced lending from taxable sources. In some states, however, it appears that tax-exempt financing has made a difference in the amount of lending because state authorities were willing to offer more favorable terms than Sallie Mae in buying loans from banks or because they were willing to lend when banks refused to do so. The state authorities compete with Sallie Mae in purchasing loans, and, by and large, they have been willing to buy loans at par from smaller banks, even when balances are small and servicing costs are therefore relatively high. Before the creation of the authorities, Sallie Mae tended either to buy such loans at prices below par or to avoid them altogether.

Today, the secondary market for student loans consists of Sallie Mae; money center banks, such as Manufacturers Hanover Trust, Citibank, Chase Manhattan, Chemical Bank, and Marine Midland; and the state student loan authorities. The degree of competition within this market is limited largely because the GSL legislation prevents the establishment of a fully private institution that would compete with Sallie Mae and be exclusively devoted to student loans. Moreover, for private banks, holding student loans is less profitable than for Sallie Mae because their borrowing costs are higher. If, under these circumstances, state authorities could not issue tax-exempt bonds, the already limited competition within the student loan secondary market could lessen, with possible negative effects on the availability of loans, unless private lenders had more incentive to make and purchase student loans.

Increase the Special Allowance Payments for Student Loans Financed with Taxable Funds

The justification for tax-exempt financing is that it provides funds for loans that private financial institutions otherwise would not make. These loans tend to be higher-cost loans with low face amounts. If the SAP were high enough, however, private lenders would make these loans, too. Moreover, unlike the costs incurred through tax-exempt financing, the costs of making or purchasing these loans would be direct rather than indirect, and on-budget rather than off-budget. For most GSLs, the SAP is high enough to induce lender participation, so the SAP would have to be higher only for some loans. A possible measure would be to vary the SAP with the size of the loan. The Department of Education could take competitive bids and auction off blocks of loans grouped by size. This, however, could turn the currently simple loan process into an administratively cumbersome one. Alternatively, the Department of Education could take bids on the more limited number of loans that state authorities identify as not being serviced by private lenders, which might be a simpler approach.[1] The amount by which the SAP could be increased and still cost the federal government less than tax-exempt financing would vary with interest-rate levels and would decline as T-bill rates rose. At high T-bill rates, an increase in the SAP could be more costly to the federal government than tax-exempt financing.

Ease Restrictions on Student Loan Bonds

If the Congress wants to make more student loans available without increasing the SAP, it might consider easing restrictions on tax-exempt bonds.

Eliminate Volume Limits or Department of Education Review. Under current law, student loan bonds and industrial revenue bonds are subject to a combined volume limit (see Chapter II). Student loan bonds are also subject to review by the Department of Education, which determines eligibility for the SAP. At the time the legislation mandating the Department's review went into effect, the Congress had not yet enacted the volume caps. State authorities have since complained that their activities are subject to double constraints and that the two sets of limits are unnecessary. The present administration has taken the position that student loan bonds benefit from a double subsidy--exemption from taxation and federal guarantees of student loans--that warrants the imposition of these limits. Current law maintains the subsidy, but with strong safeguards against abuse.

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[1] This proposal was originally put forth by Tom Neubig in "The Needless Furor over Tax-Exempt Student Loan Bonds," *Tax Notes*, April 1, 1984, pp. 93-96.

Pending legislation would ease some of the current restrictions on student loan bonds. The bill reauthorizing the Higher Education Act of 1965, which was passed by the House of Representatives at the end of 1985 (H.R. 3700), would require that state governors, rather than the Department of Education, review authorities' plans for doing business. This would be consistent with the continuation of volume limits, which are also administered at the state level, making it unnecessary for state authorities to negotiate with two levels of bureaucracy in order to issue bonds. It would also avoid some of the delays involved in issuing bonds. The reauthorization legislation recently passed by the Senate (S. 1965) eliminates altogether the requirement that states submit a plan for doing business.

An alternative would be to eliminate the volume limits but to continue review by the Department of Education. This would leave to the federal government all decisions regarding tax-exempt financing for student loans. The question before the Congress is whether over the long term two sets of limits are desirable.

In addition to legislation reauthorizing the Higher Education Act, the House late last year passed a tax reform bill (H.R. 3838) that would impose even more stringent limits on student loan and several other types of tax-exempt bonds. The current state volume caps of $150 per person, which apply to student loan and most industrial revenue bonds, would be increased to $175 per person, but they would include bonds for multifamily housing and private hospital and educational facilities owned and operated by tax-exempt organizations, which are not subject to any volume cap under present law, and bonds for single-family housing, which are currently subject to a separate cap. Tax reform legislation approved more recently by the Senate would retain the volume limits in current law. To the extent that the need for the Department of Education's continued review of student loan authorities' bond issues may be questionable under current law, it might be even more so if more stringent volume limits were enacted.

Eliminate Restrictions on Issuance of Student Loan Bonds. The Congress could, of course, remove all restrictions on the use of student loan bonds on the grounds that they improve access to federally guaranteed student loans in many areas and that, even where they may be substituting for taxable borrowing, they are less costly than other tax-exempt bonds because of the lower SAP. Unlike tax-exempt financing for many other purposes, student loan bonds advance the goals of a federal program. Moreover, the volume of new issues of student loan bonds, which peaked at $3.1 billion in 1983, so far has been fairly low, compared to bonds for many other purposes.

The argument against removing all restrictions is that, under many circumstances, student loan bonds yield large arbitrage profits, which provide an incentive to issue bonds even when they merely displace taxable financing and therefore provide no additional aid to students. Since overissuance has been a problem among some authorities, particularly in Arizona and California, some limits are necessary. Moreover, student loan bonds do result in a net budgetary cost under most circumstances and therefore should be as subject to deficit reduction efforts as other programs.

ELIMINATE STUDENT LOAN AUTHORITIES' PROFITS

Under current law, the returns on student loans may often substantially exceed an authority's administrative and servicing costs. An authority may either use its surpluses to make or purchase additional student loans or it may turn them over to the state treasury. The prospect of generating profits is a stimulus to bond issuance by state authorities and a reason for federal limits on bond volume. Another means of removing the incentive to issue bonds that merely substitute for taxable financing would be to reduce profits from issuing the bonds. The main ways of cutting down on surpluses are to reduce the special allowance payment or to enact more restrictive arbitrage regulations.

Reduce the Special Allowance Payment for Loans Financed with Tax-Exempt Bonds

A lower special allowance payment would result in lower profits, but if the minimum floors were retained, the reduction in profits and in costs to the federal government would both be relatively small. As an example, suppose 8 percent student loans financed with tax-exempt bonds were eligible for a SAP that was 40 percent instead of 50 percent of the regular payment. At T-bill rates ranging from 5 to 15 percent, spreads on variable- and fixed-rate bonds would in many cases be larger than necessary to cover servicing and operating costs. Maximum permissible spreads would range between 3.0 and 5.7 percentage points, compared with between 3.0 and 6.75 percentage points under current law. In other words, allowable spreads would still far exceed the amount necessary to cover costs.

As long as authorities can choose between fixed- and variable-rate financing and can benefit from a guaranteed minimum special allowance, reducing the SAP will have a very limited effect on their ability to generate surpluses. If, on the other hand, the floors were removed and the SAP was reduced to 40 percent of the regular payment, permissible spreads would be more than sufficient to cover costs at T-bill rates between 8 percent and 15 percent, but insufficient at T-bill rates below 6 percent. The floors might be reduced, but at low interest rates spreads would still be inadequate.

At present, with variable-rate financing, most agencies can manage without a SAP as long as the T-bill rate is at or below 9 percent. This assumes that student loans remain at 8 percent (or higher) and that current market conditions prevail. If short-term tax-exempt rates were to rise in relation to the T-bill, additional assistance would be necessary in order for tax-exempt bonds to be a viable method of financing student loans. For example, if short-term tax-exempt rates rose to 75 percent of the T-bill, then once the T-bill rose above 8 percent, some form of assistance would be necessary; otherwise, the spread between borrowing and lending costs would be insufficient to cover the servicing and operating expenses of student loan programs. With fixed-rate financing, borrowing rates would have to be 6 percent or lower for a SAP to be unnecessary. If the borrowing rate was 7.5 percent, then a floor would be necessary to cover operating and servicing costs when T-bill rates were lower than 8 percent.

In 1980, adjusting the SAP seemed to be a simple, equitable, and straightforward way to assure against windfall profits to student loan authorities. This adjustment, however, was geared to issuing practices at the time, which heavily favored fixed-rate financing. Variable-rate financing, although not unknown, was uncommon. Today, the variety of borrowing methods available to state authorities makes a simple adjustment of the SAP an ineffective way to avoid surpluses and excess arbitrage profits. This is because with variable-rate financing, the lower the T-bill rate, the wider the spread between borrowing and lending costs; with fixed-rate financing, the lower the T-bill rate, the narrower the spread. No simple adjustment of the SAP can effectively deal with both of these situations. The adjustment of the SAP could vary with the method of financing, but this would be administratively cumbersome because the Department of Education would then have to keep track of a large number of bond issues.

Another alternative would be to base the yield for loans financed with tax-exempt bonds at a fixed percentage of the T-bill with no minimum. For example, the yield on loans could be set at 75 percent of the T-bill plus

3.25 percent.[2] The problem is that tax-exempt interest rates have no fixed relationship to the T-bill or any other taxable rate, so that at times the formulas might work well from the standpoint of both the authorities and the federal government and at times not.

Impose the Usual Arbitrage Restrictions on Student Loan Bonds

Instead of cutting the special allowance, the Congress could reduce profits to state authorities by imposing on student loan bonds the same or similar arbitrage restrictions that apply to other tax-exempt bonds. These restrictions deal with yield spreads, investments in nonpurpose obligations during the temporary period immediately following bond issuance, and earnings on reserve funds.

Yield Spreads. The usual arbitrage rules limit the difference between the yield on tax-exempt bonds and the yield on investments made with bond proceeds. If the SAP was included in calculations of arbitrage profits, then the bond issuer would be required to rebate on a regular basis as much of the special allowance as necessary to bring the yield on the loans down to a permissible level.

The ordinary arbitrage rules permit a difference between the yield on student loans and the yield on student loan bonds of 1.5 percentage points plus the administrative costs associated with bond issuance, or a higher amount if the bond issuer demonstrates that a higher amount is necessary. These rules could apply to student loan authorities. Most authorities could cover their servicing costs with a 1.5 percentage point spread. They might have difficulty covering overhead expenses also; however, current law permits a larger spread as long as the issuer can demonstrate its necessity.

An alternative would be to change the arbitrage rules for student loan bonds to allow a maximum spread of, say, 2.0 to 2.5 percentage points, plus administrative costs associated with bond issuance. Under this option, most state authorities would be able to cover their overhead, loan servicing and administrative costs, including letter of credit or insurance fees, trustee's fees, and remarketing fees. Whenever the spread exceeded the specified level, student loan authorities would rebate the surplus to the federal government. The amounts rebated would reduce the costs of financing student loans with tax-exempt bonds.

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[2] This would end an anomaly that has existed since 1980, namely that the total yield to lenders using tax-exempt bonds varies with the student loan interest rate, while the yield to lenders using taxable financing maintains a constant relationship to the T-bill rate.

This approach has the advantage of encouraging efficiency among student loan authorities. Some authorities have already cut their operating and servicing costs below the 2.0 percent level. These authorities could keep the difference and use it to make or purchase additional student loans. Under current law, they could also rebate any surpluses to the state. The surpluses would, however, be small and would not accrue to all agencies.

The National Council of Higher Education Loan Programs (NCHELP) has recommended a variant of this approach. Under the NCHELP proposal, the SAP would be included in determining the yield on student loans, and state authorities would be permitted a spread between the yield on bonds and the yield on loans of 0.75 percentage point after taking into account servicing costs and administrative costs associated with bond issuance. The 0.75 percentage point would cover overhead, rent, auditors' and accountants' fees, and the like. This proposal would reduce surpluses from current levels in most, if not all cases. A possible drawback is that it might not provide the authorities with sufficient incentives to cut costs. At present, the prospect of realizing profits encourages authorities to seek lower fees and to service loans more efficiently. The advantage of the proposal to the authorities is that it would cover their servicing costs regardless of inflationary increases or changes in the composition of student loan portfolios.

Rebate Requirements. The House and Senate have passed tax reform bills with significantly different provisions regarding arbitrage earnings on investment of student loan bond proceeds during temporary periods. The House bill would impose on student loan bonds the rebate requirements currently applicable to IDBs (see Chapter II). If both houses ultimately approved this provision, authorities would have to rebate to the federal government all their arbitrage earnings from investments in nonpurpose obligations unless they fully expended the proceeds of a bond issue within six months. In determining arbitrage earnings, authorities would not be able to take issuance costs into account. The Senate bill generally requires arbitrage earnings to be rebated; however, it would permit student loan authorities to use these earnings to the extent necessary to cover issuance costs. Both of these provisions differ markedly from current law, which permits authorities to take up to three years to use the proceeds of a bond issue.

At present, authorities use the arbitrage earnings during temporary periods to pay the costs of bond issuance. These costs, which range between 1 percent and 3 percent of a bond issue, include underwriters' discounts, bond counsel fees, printing fees, and initial bond carrying costs, including letter of credit fees. Some authorities can pay these fees from surpluses that have accumulated from other bond issues, but, if these surpluses do not exist, authorities have no independent source of income to cover costs, other than bond proceeds. At the time that bonds are issued, however, authorities cannot assure bondholders or providers of credit support that the return on student loans will be sufficient to pay back issuance costs and initial bond carrying costs. In most cases, authorities can recover their issuance costs over the term of the bond, but if they lack the surpluses to meet upfront expenses, either the state has to provide the funds, or the authority has to resort to taxable financing.

This provision in the House version of H.R. 3838 could substantially reduce tax-exempt financing for student loans. For other types of bond issues, the provision presents less of a problem because governmental entities generally have the funds to pay for these costs. They cover the costs by raising the interest rate on the loans they make. Student loan authorities, however, have no control over the interest rate they charge their borrowers, nor can they predict future interest rates, which are legislatively determined. If a student loan authority used the proceeds of bond issues to pay issuing costs that it could not cover with arbitrage earnings or surpluses, it would be risking default if it had to call a bond issue.

Student loan bond issuers maintain that they cannot assure prospective bondholders of their ability to make and purchase loans within six months and, even if they could, they would have difficulty in covering their issuance costs. On the other hand, the arbitrage profits that student loan authorities earn over three-year periods often exceed issuance costs and encourage overissuance. In view of these considerations, the Congress might consider requiring authorities to expend the proceeds of bond issues over a period of between one and two years, instead of the six months proposed by the House, and to rebate all arbitrage earnings in excess of issuance costs. Alternatively, the Congress might adopt the measure in the Senate bill, which would retain the three-year temporary period but require authorities to rebate to the federal government all arbitrage earnings on nonpurpose obligations in excess of issuance costs. Or, the Congress could take the position that regardless of special circumstances, student loan authorities ought not be exempted from the rebate requirements that apply to all other issuers of tax-exempt bonds. Accordingly, if earnings on bond proceeds were insufficient to cover issuance costs, state legislatures should appropriate the necessary funds. Over the life of an issue, authorities can usually recover their issuance costs. If they do, they might refund from any accumulated surpluses the amounts advanced to them to cover issuance costs.

Reserve Funds. Under current law, up to 15 percent of the proceeds of a bond issue may be deposited in a reserve fund and invested in nonpurpose obligations. H.R. 3838 would change the amount to 150 percent of the debt service for the bond year and require that the investments be reduced as the bond issue is repaid. This provision might reduce surpluses and would be unlikely to have any adverse effects on the operations of student loan authorities. The Congress might also consider requiring student loan authorities to rebate earnings on reserve funds once a bond issue has been retired.

Treasury Regulations. Both the House and Senate Finance Committee versions of H.R. 3838 retain the current law provision empowering the Department of the Treasury to write arbitrage regulations for student loan bonds that could, among other measures, alter the treatment of SAP payments. The only restriction on these regulations is that they must be consistent with the rebate requirements and the limits on investment in nonpurpose obligations in H.R. 3838, whatever they may ultimately be. As written, this provision could make it possible for the Department of the Treasury to write regulations that impose even more stringent restrictions on student loan bonds. For example, it could include the SAP in calculations of arbitrage profits and limit the spread between borrowing and lending costs to 1.5 percentage points or less, which would make tax-exempt financing for student loans impossible. If the Congress wishes tax-exempt financing for student loans to continue, then it may wish to reconsider the amount of authority now vested with the Treasury Department.

Refinancing. Under current law, authorities may issue bonds to refinance student loans up to 180 days before redeeming the original issue. This gives authorities considerable flexibility to refinance at lower interest rates and entails no risk for them because they can invest the refunding bonds in federal securities yielding the same return. Advance refunding, however, can increase the volume of outstanding tax-exempt bonds and thereby be a drain on federal revenues. H.R. 3838 sets new limits on refinancing. The House version requires the redemption of refunded bonds within 30 days; the Senate version requires redemption within 90 days. Current Department of Education regulations require redemption within 30 days for student loan bonds. A 30-day period may present administrative or technical problems, particularly for currently outstanding issues. The Congress might consider extending the period to 45 days for all student loan issues or to between 45 and 60 days for currently outstanding issues.

Specify Permissible Uses of Surplus Funds

Coupled with or instead of other measures, the Congress could require surplus funds to be invested in more student loans or rebated to the federal government. Under current law, surpluses must either be used to make or purchase additional loans or be paid to the state or one of its political subdivisions. From a federal perspective, the use of surpluses to make payments to the state amounts to off-budget revenue sharing. On the other hand, limits on use are hard to enforce because of the difficulty in tracing the use of funds to their source. Thus, a requirement that surpluses be used to make additional loans would entail setting comprehensive limits on state authorities' use of surplus funds both while the bonds are outstanding and after the principal and interest have been paid back. If, for example, a state authority issued bonds, used the proceeds to make student loans and subsequently sold the loans to Sallie Mae, the proceeds from the sale of the loans either would have to be used to make more loans or to retire the bonds, and any surplus that remained after the bonds had been retired would have to be used to make more loans or rebated to the federal government.

If the Congress decides to regulate the use of surpluses without making any attempt to reduce them, it would in effect be saying that, in the case of student loans, it is desirable to use surplus funds to circumvent at least partially the volume limits on tax-exempt bonds. At present, some authorities are using surpluses to pay underwriters' discounts and issuing expenses. In so doing, they can lower the effective interest rate on a bond issue. This piles subsidy upon subsidy and makes it possible for authorities to issue more bonds than they otherwise would. If, as under current law, limits are imposed on the volume of bond issues, then authorities can use surpluses to make or purchase student loans, thereby mitigating the effects of volume caps. Where authorities have no plans to use surpluses to make or purchase additional loans, they can increase spending for computer systems, salaries, and overhead.

REDUCE THE COSTS OF TAX-EXEMPT FINANCING

Tax-exempt financing is an indirect, off-budget subsidy that more often than not is more expensive than a direct interest subsidy. If the Congress wants to make student loan assistance more visible and to reduce the direct costs of tax-exempt financing, then it might eliminate tax-exemption for student loan bonds or withhold the SAP on loans financed with them.

Eliminate Tax-Exempt Student Loan Bonds

Since 1984, several state authorities have had to choose between receiving special allowance payments and using tax-exempt bonds (see Chapter II). In most cases, the authorities have opted for taxable loans. Most state authorities have borrowed from Sallie Mae, but some have borrowed from commercial banks. These commercial banks have tended to be foreign, mostly Japanese, Swiss, and German. By and large, U.S. banks have been unable to compete with Sallie Mae because their borrowing costs are much higher (see Chapter III). Some state authorities have assiduously sought lenders other than Sallie Mae because of a desire to avoid being in debt to a competing agency.

Most of Sallie Mae's loans to state authorities have been at a floating interest rate equal to the bond equivalent 91-day T-bill plus 125 basis points.[3] This means that state authorities have had to operate with a spread of 225 basis points, which is tight and, for some, unmanageable. Occasionally, commercial banks have offered the authorities slightly better terms, increasing the spread by between 10 and 15 basis points. Legislation passed by the Senate (S.1965) would reduce the SAP so that the rate on student loans would be 300, instead of 350, basis points above the 91-day T-bill. Assuming no change in borrowing costs, this would, of course, reduce the spread on Sallie Mae loans to 175 basis points, which might not be sufficient to cover the servicing and administrative expenses of many authorities. A 50-basis-point reduction in the SAP might also decrease commercial bank participation in the GSL program. As a result, some loans might not go forward or some lenders might cut back on their servicing operations, which in turn could lead to a larger number of defaults and increased costs to the federal government.

If the SAP is reduced and the institutions making loans do not lower their rates, taxable financing could become infeasible for a number of student loan authorities. This, if coupled with the elimination of tax-exempt financing, would reduce competition and restrict the availability of student loans. State authorities could try to float taxable bonds. If so, they probably would prefer to issue bonds at rates pegged to the T-bill because of the way the SAP is structured; however, if they did, they would have difficulty selling their securities in secondary markets because they would be competing with certificates of deposit and commercial paper, and the rates for these securities do not necessarily move in tandem with the T-bill. If CD and commercial paper rates rose in relation to the T-bill, the

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3. A basis point is equal to .01 percentage point.

authorities could well find themselves having to manage with narrower spreads than those possible with a loan from Sallie Mae or a commercial bank.

Withhold the SAP on Student Loans Financed with Tax-Exempt Bonds

The Congress could permit student loan authorities to choose between receiving special allowance payments and issuing tax-exempt bonds. In the past year, some agencies--among them the South Dakota Student Loan Assistance Corporation and the Colorado Student Obligation Bond Authority--decided to issue tax-exempt bonds and to do without the SAP. In the one case, the authority's decision followed the Department of Education's refusal to approve special allowance payments in connection with a proposed tax-exempt bond issue; in the other, the authority perceived that market conditions were favorable to a bond issue without the SAP and decided to avoid the Department's approval process.

Without the SAP, tax-exempt financing of GSLs under current law would entail some additional cost to the federal government only if more student loan credit becomes available and none if not (see Chapter IV). The Congress might, therefore, consider permitting the unlimited issuance of student loan bonds to finance GSL and PLUS loans as long as no special allowance payments are involved. The use of tax-exempt bonds to finance student loans that are not federally guaranteed is another matter. These loans are primarily for students who do not qualify for GSL or PLUS loans or who seek more funds than these programs provide. Both the House and Senate versions of H.R. 3838 expand the definition of a "qualified student loan bond" to include obligations issued to finance loans under state supplemental programs. These nonfederal programs entail additional federal expense.

The passage of legislation reauthorizing the Higher Education Act of 1965 could result in a change in the interest rate on GSLs. The House has passed legislation that would raise the interest rate to 10 percent after the student has been out of school for five years (H.R. 3700). The Senate has approved a bill (S. 1965) that raises the interest rate to 10 percent as soon as the student begins to repay the loan. If GSL interest rates were 10 percent, student loan authorities could easily manage without a SAP as long as their financing costs were 7.5 percent or less. This effect, however, would occur only after students have left school. Interest rates while students are in school would remain at 8 percent. On balance, then, if the SAP were withheld on student loans financed with tax-exempt bonds, the volume of issues would probably decline below the levels currently contemplated in pending legislation.

In general, the higher the student loan interest rate, the more tax-exempt financing will cost the federal government relative to taxable financing. This is because the SAP decreases as student loan interest rates increase. While pending education legislation could raise the costs of tax-exempt financing to the federal government, pending tax legislation would have the opposite effect. This is because lower marginal tax rates reduce the federal revenue loss per dollar of tax-exempt financing. At the same time, the differential between tax-exempt and taxable rates would become narrower. In other words, tax-exempt financing would become relatively more expensive to the issuer, reflecting the decline in the federal subsidy rate.

THE EFFECTS OF PENDING LEGISLATION

At present, several bills are pending in the Congress that could affect the future of student loan authorities in different and, in some respects, contradictory ways. In general, legislation to reauthorize the Higher Education Act of 1965 would make it easier for the authorities to finance student loans with tax-exempt bonds. H.R. 3700 removes the current law requirement that the Department of Education approve an authority's "plan for doing business" by transferring that responsibility to the state governor. S. 1965 removes altogether the requirement that authorities draw up a "plan for doing business." Under either bill, the major, if not the only constraint on an authority's ability to issue tax-exempt bonds would be the volume limits that are administered at the state level. Both bills would continue the SAP for loans financed with tax-exempt bonds at 50 percent of the regular payment; however, S. 1965, would reduce the SAP, which would make it more difficult for the authorities to use taxable financing. Both bills would eventually raise interest rates on student loans, which would increase authorities' profits from tax-exempt financing and also make it possible for authorities to forgo the SAP subsidy under more circumstances than at present.

Pending tax legislation, on the other hand, might make tax-exempt financing more difficult by imposing additional state-by-state restrictions on the volume of tax-exempt bonds and by tightening arbitrage restrictions. The House of Representatives has passed a bill that would clearly have such an effect. The Senate has approved a tax reform bill that essentially retains for student loan bonds the more liberal volume limits in current law and imposes less stringent arbitrage restrictions than the House bill. Both the House and Senate bills reduce marginal tax rates, which, in turn, would lower the cost to the federal government of tax-exempt financing by some currently unpredictable amount. An increase in student loan interest rates, however, could have an offsetting effect.

In combination, some of the features of S. 1965 and H.R. 3838 could make it extremely difficult for state authorities to continue financing student loans from either taxable or tax-exempt sources. This could happen if, for example, the Congress adopted the provisions in the House version of H.R. 3838 dealing with tax-exempt bonds and the provisions in S. 1965 reducing the SAP. In the past, the combination of tax legislation and education legislation has produced effects that the Congress neither anticipated nor intended. Without coordination, it could happen again.

APPENDIXES

APPENDIX A

ESTIMATES OF REVENUE LOSS FROM TAX-EXEMPT STUDENT LOAN BONDS

The CBO estimates of the revenue loss from tax-exempt bonds are based on simulations of a general equilibrium model of portfolio choice and capital allocation. The model is labelled GEMDAT (General Equilibrium Model of Differential Asset Taxation) because it focuses on how investors choose among assets with different degrees of tax preference. GEMDAT is being continuously revised and updated; the simulations in this paper are from a version that reflects revisions completed in 1985, using 1983 data.[1]

In the simulations presented below, the supply of tax-exempt bonds issued to finance federal programs increases by $10 billion, while the supply of taxable bonds declines by the same amount.[2] This change in asset supplies alters relative interest rates so that households are encouraged to absorb the additional supply of tax-exempt bonds. Two simulations are presented--one in which total physical capital stocks in each sector of the economy are held fixed and another in which the allocation of real capital among sectors is allowed to change in response to changes in relative costs of capital.[3]

The simulations should be viewed as illustrative for two reasons. First, the behavioral parameters of the model, although derived from standard portfolio choice theory, have not been tested empirically. Thus, the degree of substitution among assets by households may be different than represented here. Second, the model is solved for a particular set of asset holdings and interest rates, designed to represent values prevailing in 1983. Since 1983, both interest rates and total quantities of assets, in particular the stock of tax-exempt bonds held by households, have changed considerably. Thus, the absolute value of the revenue loss per dollar of bonds may be very different today than in 1983, although the relationship between the revenue loss and the yield spread should be similar.

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[1] GEMDAT was originally developed by Harvey Galper and Eric Toder, with subsequent revisions by the original authors and Robert Lucke. For the most complete description of the version of the model used in this paper, see Harvey Galper, Robert Lucke, and Eric Toder, *Taxation, Portfolio Choice, and the Allocation of Capital: A General Equilibrium Approach*, Brookings Discussion Papers in Economics (Washington, D.C.: The Brookings Institution, March 1986).

[2] The federal government does not issue tax-exempt bonds directly. The proceeds of the bond issues, however, ultimately are made available for a federally guaranteed loan to students. The question turns upon whether the ultimate source of finance for this federal program is tax-exempt bonds issued by state authorities, or debt instruments of Sallie Mae or commercial banks.

[3] For similar simulations of the revenue loss from tax-exempt bonds, using an earlier version of the same model, see Eric Toder and Thomas Neubig, "Revenue Costs of Tax Expenditures: The Case of Tax-Exempt Bonds," *National Tax Journal*, vol. xxxviii, no. 3 (September 1985).

BRIEF DESCRIPTION OF GENERAL FEATURES OF MODEL

In GEMDAT, financial assets are supplied to households by three capital-using sectors--corporations, noncorporate businesses, and state and local governments--and by the federal government, which issues taxable debt. There are 400 representative households in the model, weighted to add up to the entire taxpaying population. The households are selected by dividing taxpayers into 10 labor income groups, 10 capital income groups, itemizers and nonitemizers, and filers of joint and single returns. Each household allocates a fixed amount of wealth among four financial assets--taxable bonds, tax-exempt bonds, corporate shares, and shares in noncorporate business--and household-sector capital, which includes owner-occupied homes and consumer durables. Households choose their financial portfolios so as to maximize utility, which varies positively with expected income and negatively with the variance of income.

The amount of each type of asset supplied to households depends on the desired capital stock in each sector (corporate, noncorporate business, and state and local) and the debt-equity ratio of corporations. The desired capital stocks themselves depend on relative costs of capital. The demand for each asset by households depends on the asset's relative after-tax return, compared to the after-tax return on taxable bonds, and on the asset's expected after-tax variance. Taxable bonds are treated as a riskless asset in the model (zero variance), while the other assets all are assigned a positive risk.[4]

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[4] Of course, taxable bonds are also risky because their capital value can change with changes in market interest rates. The simplifying assumption that taxable bonds are riskless may be justified because in fact the variance on long-term taxable bonds appears to be smaller than the variance on other financial assets. For example, using data and a methodology developed by Ibbotson and Sinquefield, we compute variances on the inflation-adjusted total return of .0092 for long-term corporate bonds, .0335 for common strocks, and .0190 for a Standard and Poor's index of 20-year tax-exempt bonds for the years 1952-84. For similar computations for corporate bonds and stocks,

The model solves for the interest rates on taxable bonds and tax-exempt bonds and the pretax returns to individuals on corporate stock's and investments in noncorporate business that equalize the demands and supplies for all assets. At these interest rates, one can then compute the value of physical capital in each sector, total assets held by each household, and total tax revenue.[5]

TREATMENT OF TAX-EXEMPT BONDS IN THE MODEL

In GEMDAT, tax-exempt bonds are supplied to households by state and local governments and corporations. State and local governments issue tax-exempt bonds to finance holdings of public-sector capital, such as schools and highways. The cost of capital to state and local governments is taken to be the real tax-exempt interest rate. State and local governments also issue tax-exempt bonds, the proceeds of which are made available for investments by private firms and individuals. In the model, private-purpose bonds are treated as if issued directly by the sector that is the ultimate user. Thus, industrial development bonds (IDBs) are modelled as tax-exempt bonds issued directly by the corporate sector. Corporate tax-exempt borrowing is initially set at 1983 levels of IDBs and then held at a constant proportion of total corporate debt in simulations of the model.

The proceeds of student loan bonds are used for a federal lending program--the Guaranteed Student Loan (GSL) Program. The ultimate supplier of funds is the household (or institution) that purchases a tax-exempt bond; the proceeds of this bond issue are then ultimately lent, with a federal guarantee, to the student, who is the final user. The conditions of GSLs, including the federal guarantee and the interest rate to borrowers (though not the subsidy payments to intermediaries), are unaffected by whether the ultimate supplier of funds is receiving tax-exempt or taxable interest.

For this reason, the model treats student loan bonds as a substitution of tax-exempt for taxable federal debt. In either case, the federal government is making or guaranteeing the same loan to a student, but in the

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[4] see Roger G. Ibbotson and Rex A. Sinquefield, *Stocks, Bonds, Bills and Inflation: The Past and Future* (Charlottesville, Virginia: The Financial Analysts Research Foundation, 1982). Ibbotson and Sinquefield do not compute returns on tax-exempt bonds.

[5] The equations of this model are presented in Galper, Lucke, and Toder, pp. 5-16.

case of student loan bonds the loan is financed by issuing tax-exempt bonds. This means that the supply of tax-exempt debt to individuals is increased by the same amount that the supply of taxable debt is reduced.

On the demand side of the model, tax-exempt bonds are held by both individuals and financial intermediaries. GEMDAT generally does not consider the role of financial intermediaries; real capital held by capital-using sectors is linked directly to financial assets held by individuals. An exception is made in the case of tax-exempt bonds because, in 1983, about two-thirds of tax-exempt bonds were held by financial intermediaries (mainly commercial banks and property and casualty insurance companies).[6] If the model allowed all tax-exempt bonds to be absorbed directly into the portfolios of households, it would seriously overstate opportunities for tax-exemption available to households and understate the proportional increase in tax-exempt bonds available to households when the total supply of these bonds increases. The stock of tax-exempt bonds held by financial intermediaries is initially set at $295 billion (for 1983)[7] and held fixed in the simulations. This means that marginal increases in tax-exempt bonds are all absorbed by individuals.[8] To maintain the equality between demand and supply for all financial assets in the model, tax-exempt bonds held by financial institutions are treated as if financed by taxable debt held by households. Households receive the same return from these assets as on other taxable bonds, but users of capital services obtain the funds at the (lower) tax-exempt rate. The difference between the taxable rate received by lenders and the tax-exempt rate paid by borrowers represents a federal subsidy to activities financed by tax-exempt bonds conveyed in the form of a reduction in taxes that would otherwise be paid by financial intermediaries.

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6. Both the amount and share of tax-exempt bonds held by individual taxpayers instead of institutions has increased between 1983 and the end of 1985.

7. The data on tax-exempt bond holdings used in the model were based on estimates published by the Federal Reserve Board. See Board of Governors of the Federal Reserve System, *Balance Sheets for the U.S. Economy, 1945-83* (April 1984).

8. The same assumption was used in Toder and Neubig, "Revenue Costs of Tax Expenditures," and in Roger Kormendi and Thomas Nagle, "The Interest Rate and Tax Revenue Effects of Mortgage Revenue Bonds," in George C. Kaufman, ed., *Efficiency in the Municipal Bond Market: The Use of Tax-Exempt Financing for Private Purposes* (Greenwich, Conn.: JAI Press, 1981). An earlier paper by Hendershott and Koch shows demand for tax-exempt bonds by financial institutions to be relatively insensitive to changes in tax-exempt yields. See Patric Hendershott and Timothy Koch, "The Demand for Tax-Exempt Securities by Financial Institutions," *Journal of Finance*, vol. 35, no. 3 (June 1980).

In general, the model assigns financial assets among the representative households in proportion to income from the assets reported on tax returns. Tax-exempt bond holdings were imputed to households based on data from the *Survey of Consumer Finances*. Based on this data, a very large share of tax-exempt bonds held by individuals is assigned to high-income taxpayers in marginal tax brackets above 40 percent.

Simulations of the Model

The revenue effects of student loan bonds were estimated by simulating the effects of issuing $10 billion of tax-exempt federal debt to replace an equal amount of taxable federal bonds. Two separate simulations were performed. In the first simulation, total capital stocks--state and local capital, corporate capital, noncorporate business capital, and owner-occupied homes and consumer durables--were all held fixed. In addition, a weighted average of interest rates was held fixed. Relative returns on different financial assets, however, were allowed to adjust to enable households to absorb the new set of asset supplies. This simulation provides a "static" estimate in the sense that real economic outputs are unaltered. It is still necessary, however, even with static economic assumptions, to know the marginal tax rates of those who will absorb the additional tax-exempt bonds in order to compute the revenue loss from narrowing the tax base.

The second simulation, labelled the "full model" simulation in the tables, allows real capital stocks to adjust in response to changes in the cost of capital resulting from changes in relative yields on financial assets. The demand for capital services is taken to be a function of real costs of capital, with a demand elasticity of minus one. This means that total real capital income originating in each sector is held fixed, because the percentage change in the amount of capital in any sector exactly offsets the percentage change in the real cost of capital. While relative capital stocks change, total private saving, and therefore the sum of capital stocks in all sectors, is still held fixed.

Table A-1 shows the effects of substituting $10 billion of tax-exempt bonds for taxable student loan finance on interest rates, the allocation of the capital stock, holdings of financial assets, and the corporate debt-equity ratio. The top panel of the table shows that, while the yields on all assets change, only the yield on tax-exempt bonds increases by more than 0.5 basis points. The tax-exempt rate increases by 4 basis points when capital stocks are held fixed, and by 3 basis points in the full model simulation. Although not shown on the table, it is worth noting that the yield on taxable bonds declines by 0.3 basis points

TABLE A-1. SIMULATED EFFECTS ON RATES OF RETURN, CAPITAL ALLOCATION, AND ASSET HOLDINGS OF SUBSTITUTION OF $10 BILLION OF TAX-EXEMPT FOR TAXABLE BONDS IN FINANCING GUARANTEED STUDENT LOANS (1983 LEVELS)

		Simulated Changes (Basis Points)	
Pretax Rates of Return	Base Case (percent)	Capital Stock Held Fixed	Full Model
Taxable Bonds	11.64	*	*
Corporate Equity	14.05	*	*
Tax-Exempt Bonds	8.74	+4	+3
Noncorporate Capital	16.02	*	*

		Simulated Changes (Billions of Dollars)	
Capital Stocks and Financial Assets	Base Case (billions of dollars)	Capital Stock Held Fixed	Full Model
Corporate Capital	2,389.5	0	+0.5
Noncorporate Capital	1,983.0	0	+0.2
State and Local Capital	376.3	0	-1.4
Household Capital	3,188.0	0	+0.7
Net Taxable Bonds	2,105.0	-10.0	-9.0
Corporate Equity	1,653.6	0	-0.5
Tax-Exempt Bonds	160.0	+10.0	+8.6
Corporate Debt-Equity Ratio	0.445	0.445	0.446

* Less than 0.5 basis points.

The bottom panel of the table shows the effects on capital stocks and financial assets. When the capital stock is held fixed, all changes in real capital stocks are set to zero by assumption and total changes in supplies of taxable bonds and tax-exempt bonds are exactly equal to the initial changes--an increase of $10 billion in tax-exempt bonds and a reduction of $10 billion in taxable bonds. In the full model simulation, capital stocks respond to changes in pretax rates of return on assets issued by the capital-using sectors. Because the tax-exempt rate rises, the state and local sector contracts slightly. State and local capital declines by $1.4 billion, thus offsetting in part the initial increase in the supply of tax-exempt bonds. Corporate tax-exempt borrowing increases, however, because the corporate capital stock rises by $0.5 billion. Household capital (homes and consumer durables) increases by $0.7 billion in response to the (slight) decline in the cost of taxable debt. All of these secondary changes are much smaller than the initial $10 billion increase in the supply of tax-exempt bonds.

Table A-2 summarizes the revenue effects estimated from simulating the model. The total revenue loss from the $10 billion of bonds is almost the same in the two simulations, but the composition of the revenue change is different. In the full model simulation, corporations respond to changes in interest rates by increasing the debt-equity ratio slightly. The increase in corporate borrowing lowers corporate revenue, because corporate interest payments, but not corporate payments to equity owners, are deductible in computing corporate taxable income. At the same time, the increase in corporate debt, by making more taxable bonds available to individuals, increases individual taxable income and revenues. Thus, in the simulation with capital stocks held fixed, individual revenue declines by $366 million and corporate revenue by $15 million; when real capital stocks and corporate debt-equity ratios are allowed to adjust, the individual revenue loss declines to $342 million, but the reduction in corporate revenues increases to $37 million.

In both simulations, taxes paid by financial intermediaries increase by an estimated $4 million. This is a result of the modest decline in taxable interest rates, which reduces the tax saving from financing tax-exempt holdings with deductible taxable debt.

The decline in taxable interest rates also reduces the long-term costs of the remaining taxable federal debt. As shown in the second panel of Table A-2, the decline in federal interest costs is about $35 million. This is a long-run estimate; in the short run, a much smaller saving will be achieved because payments are fixed on the outstanding bonds. The savings are only achieved when the debt is refinanced. The $35 million saving on interest costs reduces the overall revenue loss to $342 million in the simulation with the capital stock held fixed and to $340 million in the full model simulation.

It is useful to compare these estimates to those that would result from a simpler model in which additional supplies of tax-exempt bonds are absorbed by investors with a marginal tax rate equal to $(i_f - i_e)/i_f$, where i_f is the taxable interest rate and i_e is the tax-exempt interest rate. This simple model can be called an "income maximization" model because investors simply choose the asset which has the highest after-tax return. Additional supplies of tax-exempt bonds are then absorbed by those who receive the same after-tax return on both taxables and tax-exempts.

TABLE A-2. SIMULATED LONG-TERM BUDGETARY EFFECTS OF SUBSTITUTING $10 BILLION OF TAX-EXEMPT FOR TAXABLE BONDS IN FINANCING GUARANTEED STUDENT LOANS (In millions of dollars)

	Simulated Changes	
	Capital Stock Held Fixed	Full Model
Individual Taxpayers	-366	-342
Nonfinancial Corporations	-15	-37
Financial Intermediaries	+4	+4
Total Revenue Change	-377	-375
Change in Federal Interest on Outstanding Taxable Debt	-35	-35
Net Budgetary Effect	-342	-340
Implied Marginal Tax Rate for Measuring Loss (percent)		
Individual revenue changes only	31.5	29.4
All revenue changes	32.4	32.2
All budget changes	29.4	29.2

Given the initial interest rates used in the simulations (11.64 percent for taxable bonds, and 8.74 percent for tax-exempt bonds), the income maximization model implies that additional tax-exempt bonds will be absorbed by taxpayers in the 25 percent bracket. In contrast, the simulations shown in Table A-2 find a total revenue loss equal to about 32 percent of the initial reduction in taxable income. The total increase in the budget deficit, taking account of the long-run saving to the federal government from lower taxable interest rates, is about 29 percent of the initial reduction in taxable income. These results suggest that the income maximization model slightly understates the revenue loss from tax-exempt bonds.

Tables A-3 and A-4 provide more detail on the portfolio shifts that produce these results. Table A-3 shows the portfolio shifts when capital stocks are held fixed. In the simulation, over 70 percent of the additional supply of tax-exempt bonds is absorbed by taxpayers with adjusted gross income (agi) between $30,000 and $50,000. These are taxpayers with marginal tax rates in the 25-35 percent range. An additional 20 percent of the bonds, however, are absorbed by taxpayers with income above $50,000. These are investors who receive a higher return on tax-exempts than on taxable bonds, but who hold less than the income-maximizing amount of tax-exempts to reduce risk. As the tax-exempt rate rises relative to the taxable rate, they increase the share of tax-exempts in their portfolios.

Table A-4 shows changes in asset holdings by income group in the full model simulation. The general patterns of asset shifts are quite similar, except that the total change in both taxable and tax-exempt bonds is now less than the initial change. Corporate equity holdings now decline slightly and holdings of household sector capital increase. The changes in total assets held by households mirror changes in assets supplied by the capital-using sectors that occur in response to changes in relative real costs of capital.

CONCLUSIONS

This appendix has presented estimates of the federal revenue losses from substituting tax-exempt for taxable sources of finance of GSLs. The results of the simulations are consistent with earlier estimates that the budgetary cost of tax-exempt bonds is slightly larger than the product of the percentage yield spread, the taxable interest rate, and the volume of additional bonds. At a 25 percent yield spread, the simulations show a revenue loss equal to approximately 32 percent of the change in taxable income. If long-run effects of lower interest rates on federal debt costs are taken into account, the net budgetary effect is slightly lower--about 29 percent of the initial reduction in taxable income.

These results are consistent with the view that the federal revenue loss from tax-exempt bonds is greater than the interest savings to tax-exempt borrowers. It is also consistent with a conclusion that, even with a 50 percent lower special allowance payment, total federal budgetary costs are in most cases increased by substituting student loan bonds for taxable sources of funds.

Although these results are the product of a fairly sophisticated modelling effort, they cannot be taken as definitive and final. Much more work needs to be done to understand the financial portfolio behavior that lies behind these estimates. In particular, there is very little empirical evidence on how changes in the relative yields among assets affect demands

TABLE A-3. SIMULATED EFFECTS ON INDIVIDUAL ASSET HOLDINGS BY INCOME CLASS OF SUBSTITUTION OF $10 BILLION OF TAX-EXEMPT FOR TAXABLE BONDS IN FINANCING GUARANTEED STUDENT LOANS: CAPITAL STOCK HELD FIXED (Changes in billions of dollars)

Adjusted Gross Income ($000)	Taxable Bonds	Corporate Equity	Non-Corporate Capital	Tax-Exempt Bonds	Household Capital
0 - 5	*	*	*	0	0
5 - 10	*	*	*	0	0
10 - 15	*	*	*	0	0
15 - 20	*	*	*	0	0
20 - 30	-0.6	*	*	+0.5	0
30 - 50	-7.2	*	0	+7.2	0
50 - 100	-0.7	*	*	+0.7	0
100- 200	-0.6	*	*	+0.6	0
200+	-0.8	*	*	+0.8	0
Pensions	*	*	0	0	0
Total	-10.0	0	0	+10.0	0

* Less than $50 million.

by different types of investors. Further work in this area is needed before much confidence can be placed in any assumptions about who would absorb an additional supply of tax-exempt securities. This information about likely portfolio shifts is essential for the revenue estimates because the estimates require knowing the rate at which any change in taxable income would have been taxed.

TABLE A-4. SIMULATED EFFECTS ON INDIVIDUAL ASSET HOLDINGS BY INCOME CLASS OF SUBSTITUTION OF $10 BILLION OF TAX-EXEMPT FOR TAXABLE BONDS IN FINANCING GUARANTEED STUDENT LOANS: FULL MODEL SIMULATION
(Changes in billions of dollars)

Adjusted Gross Income ($000)	Taxable Bonds	Corporate Equity	Non-Corporate Capital	Tax-Exempt Bonds	Household Capital
0 - 5	*	*	*	0	*
5 - 10	*	*	*	0	*
10 - 15	*	*	*	0	*
15 - 20	-0.1	*	*	0	+0.1
20 - 30	-0.6	*	*	+0.5	+0.1
30 - 50	-6.4	-0.1	*	+6.2	+0.3
50 - 100	-0.7	-0.1	*	+0.7	+0.1
100- 200	-0.5	-0.1	*	+0.5	*
200+	-0.7	-0.1	*	+0.7	*
Pensions	+0.1	-0.1	0	0	0
Total	-9.0	-0.5	+0.1	+8.6	+0.7

* Less than $50 million.

APPENDIX B

NEW ISSUES OF TAX-EXEMPT STUDENT LOAN BONDS BY STATE, (IN MILLIONS OF DOLLARS)

1983-1985 a/

State	1983	1984	1985
Alabama	75	---	---
Alaska	---	---	---
Arizona	204	---	66
Arkansas	---	---	30
California	576	128	820
Colorado	133	---	147
Connecticut	16	---	15
Delaware	---	---	---
Florida	---	---	---
Georgia	---	---	31
Hawaii	---	---	---
Idaho	17	37	---
Illinois	159	132	65
Indiana	82	---	---
Iowa	60	11	46
Kansas	---	---	---
Kentucky	119	41	109
Louisiana	---	196	2
Maine	6	---	---
Maryland	---	14	---
Massachusetts	132	122	306
Michigan	---	---	---
Minnesota	168	60	---
Mississippi	20	---	85
Missouri	---	---	35
Montana	34	68	---
Nebraska	---	---	143
Nevada	---	---	---

(Continued)

State	1983	1984	1985
New Hampshire	42	5	39
New Jersey	---	---	---
New Mexico	42	---	44
New York	---	---	95
North Carolina	---	---	---
North Dakota	---	128	125
Ohio	193	---	b/
Oklahoma	---	---	---
Oregon	---	---	---
Pennsylvania	201	200	36
Rhode Island	---	---	---
South Carolina	50	---	---
South Dakota	25	49	120
Tennessee	---	---	---
Texas	259	25	345
Utah	50	---	---
Vermont	75	---	84
Virginia	299	88	---
Washington	---	46	45
West Virginia	---	---	---
Wisconsin	46	20	19
Wyoming	---	---	---
Other c/	---	---	50
Total	3,088	1,370	2,902

SOURCE: Department of the Treasury, Office of Tax Analysis (July 15, 1986).

a. Excludes bonds to refund outstanding obligations.

b. Less than $500,000.

c. Includes the District of Columbia, Puerto Rico, Guam and the Virgin Islands.